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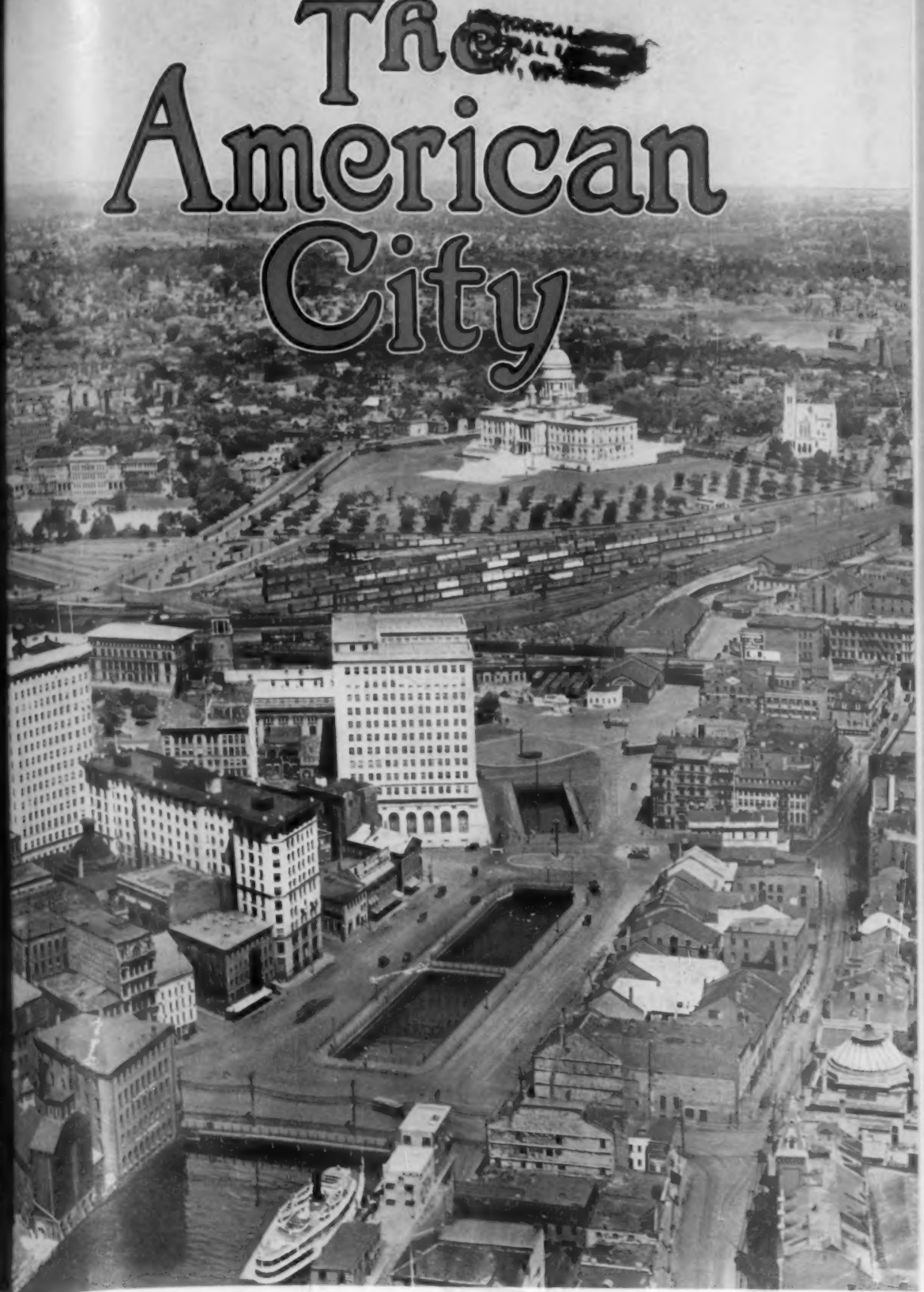

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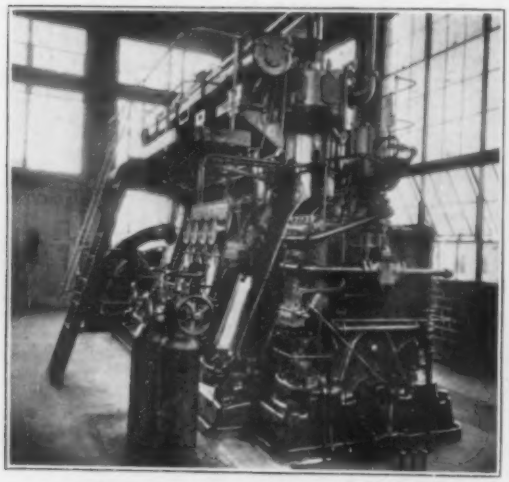

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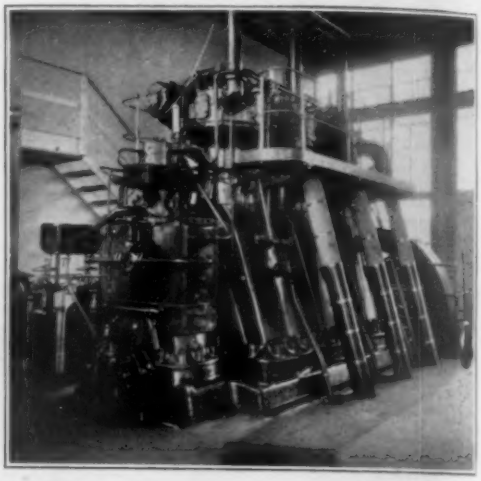

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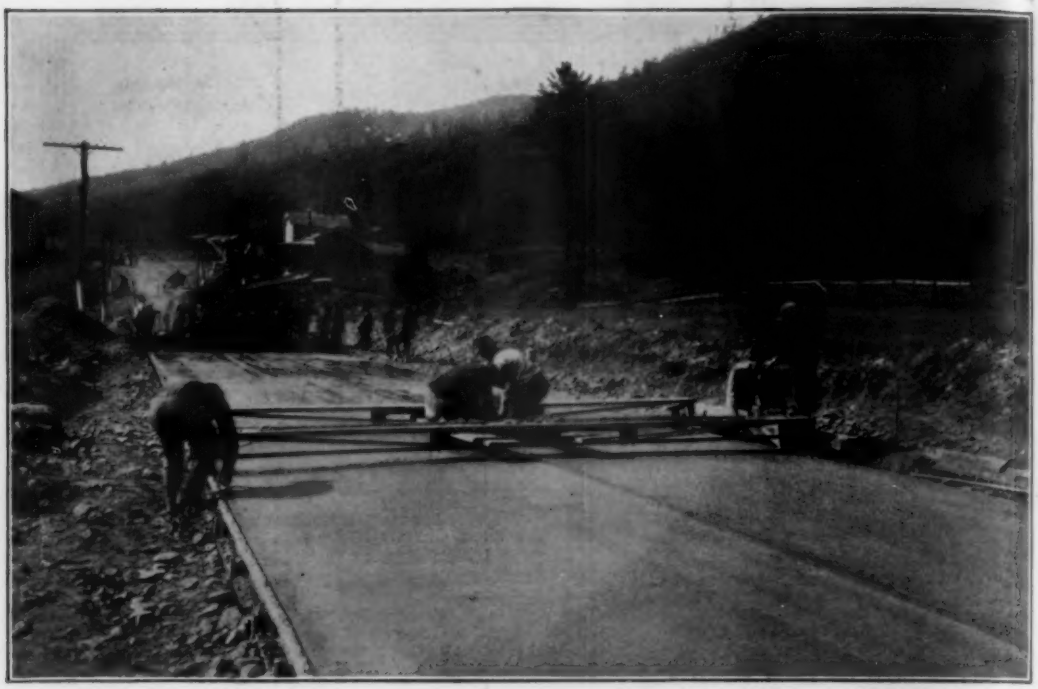

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Vol. XXXV
No. 3

The American City Magazine

SEPTEMBER
1926

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The Scituate Water-Supply Project for Providence, R. I.

Notable Work Nearing Completion to Furnish Adequate Supply

THE new Providence water-supply, known as the Scituate Project, which will be put into service within a few months, will furnish the city of Providence, R. I., with an adequate supply for many years to come. The source is a large storage reservoir, called the Scituate Reservoir, on the north branch of the Pawtuxet River, formed by a dam under construction at Kent, R. I., about two miles north of Hope, R. I., and about thirteen miles upstream from the present pumping-station at Pettaconset. The Scituate Reservoir will hold about 37,000 million gallons and will deliver water by gravity at least 50 feet higher than now served by the Sockanosset Reservoir. After the new supply is completed and in satisfactory operation, the Pettaconset pumping-station and filtration plant will be abandoned. It is estimated that the Scituate Reservoir may be safely depended upon to furnish 85,000,000 gallons a day, or three and one-half times the present consumption. Unless Providence grows more rapidly than appears probable, the new supply will be sufficient until about 1970.

The Scituate Reservoir will collect and store the water from 92.8 square miles of drainage area, or nearly 9 per cent of the land area of the state of Rhode Island. The area of the

SPILLWAY OF THE MAIN DAM OF THE SCITUATE PROJECT, TOGETHER WITH THE HIGHWAY BRIDGE CROSSING AN ARM OF THE RESERVOIR ABOVE THE SPILLWAY

The reservoir in the distance is about 18 feet below the spillway level in this illustration

RIPRAP ON THE UP-STREAM FACE OF THE MAIN DAM OF THE NEW SCITUATE WATER-SUPPLY FOR PROVIDENCE, R. I.

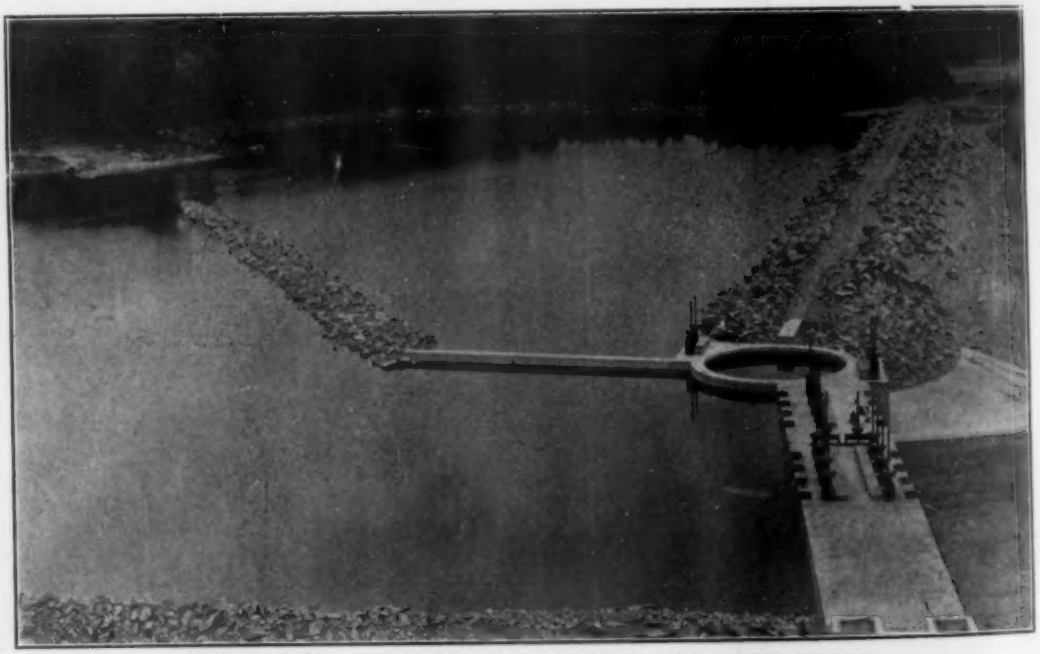
reservoir is 3,600 acres. The quantity of water stored would cover the entire corporate area of the city of Providence to a depth of 10 feet and would be sufficient without inflow to supply the city for over four years at the present rate of consumption.

The building of the Scituate Reservoir involved the construction of 26.4 miles of new roads, including some 12 miles of state highways and the abandonment of about 36 miles of old roads. The state road work involved the construction of a heavy fill of over 200,000 cubic yards and 60 feet in maximum height, known as the Ashland Causeway, to carry the relocated Plainfield Pike across the easterly arm of the reservoir at the former village of Ashland.

There were many small cemeteries or farm burial places affected by the work, from all of which the remains have been moved to other locations, in the main to the new Rockland Cemetery, provided by the city of Providence, between Rockland and Clayville, R. I. This cemetery now contains 1,549 graves.

Main Dam and Dike

The Scituate Dam has a length of about 3,200 feet at the top, a maximum width at the base of about 640 feet, and a height above the bed of the river of 100 feet, the foundation being carried down to solid rock, a maximum depth of about 80 feet below the old stream bed. The earth dike to the east of the dam is about 4,000 feet long. The construction of the dam and dike involved the placing of about 2,800,000 cubic yards of embankment material. The watertightness of the dam is assured by a central core 77 feet in maximum thickness, composed of soil stripped

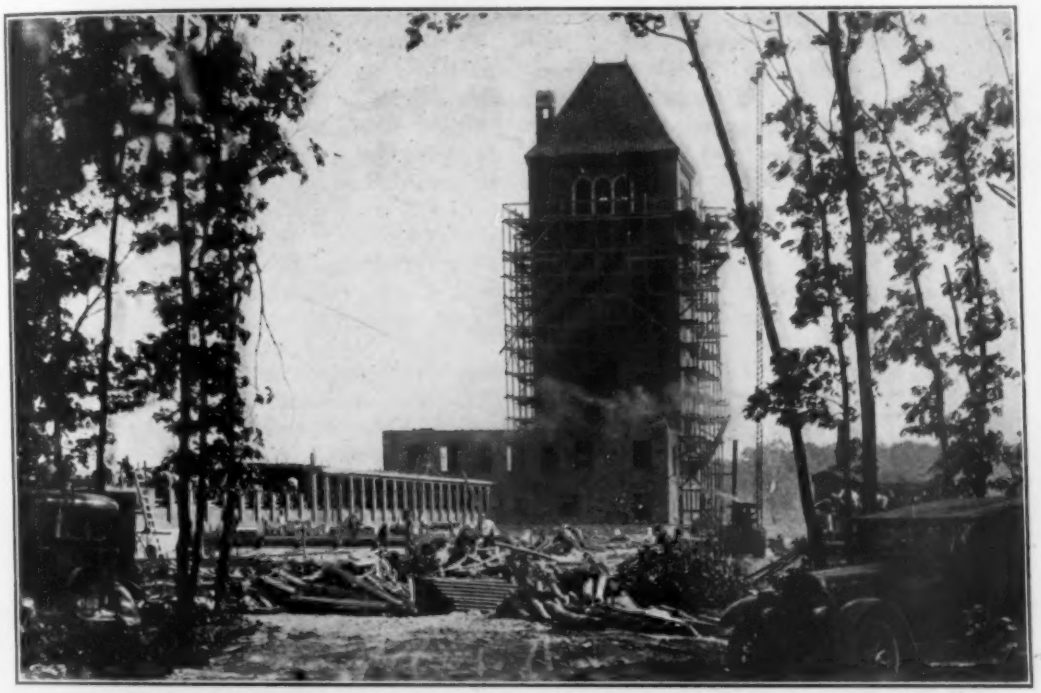


THE SMALLER OF THE TWO OPEN COAGULATING BASINS FILLED

A baffle shows in the middle of the illustration. The circular structure is the mixer, and on the right is located the second basin. The coagulating basin on the left holds about 30,000,000 gallons, and the one on the right will hold about 90,000,000 gallons. These basins can be used either separately or in tandem

from the reservoir basin above the dam and thoroughly compacted in 6-inch layers by heavy steam rollers. Similar material has frequently been used for this purpose elsewhere, notably in the Wachusett dikes of the Boston metropolitan system, and its satisfactory quality for the purpose has been further demonstrated by an extensive system of tests. The upstream face of the dam is amply protected against wave action by heavy riprap, and the downstream face is covered with top soil and grassed.

Before the soil core was started, the rock surface at the bottom of the trench was thoroughly cleaned off, all loose and disintegrated rock removed, and the seams raked out and filled with portland cement mortar or grout. A concrete blanket to cover the seams in the rock surface was generally placed over the middle 30 feet of the rock bottom, with two continuous cut-off walls near either edge about 2 feet high. Underlying seams in the rock were filled by forcing cement grout under pressure into 15- or 20-foot holes previously drilled at frequent intervals in the rock.



HEAD HOUSE AND TOWER OF THE PURIFICATION OF THE NEW PROVIDENCE WATER-SUPPLY
This is a rapid filter plant of 50,000,000 gallons capacity, with influent and effluent aeration and large open coagulating basins

Purification Works

The purification works are of the rapid sand type and are located near the west end of the Scituate Tunnel about three-quarters of a mile from the gate-house in the main dam. The aqueduct from the main dam extends to an influent chamber where the coagulant from the head house is introduced, thence to an influent aerator with spray nozzles which provide for aerating the water under available reservoir head. The water then flows from the aerator through a conduit to the mixer, which consists of a large circular well, the tangentially entering stream of which can be regulated to produce desired velocities to insure thorough mixing of the coagulant. Gates are provided at the top of the mixer to turn the flow into either one of two open coagulation basins, each of which is provided with a baffle to secure circulation. Under ordinary operating conditions the water will go from the conduit into the northerly or smaller basin, thence around the baffle to gates provided in the dam separating the two basins, thence into the southerly basin around the baffles and back to a conduit in the separating dam which carries it to the filters. After passing through the filters, the water ordinarily will pass through the effluent aerator under a small head, from which it will be discharged into the aqueduct leading to the city. The present construction consists of two coagulating basins holding

about 31 and 94 million gallons respectively, and ten sand filters each having a capacity of 4.8 million gallons daily, with provisions for adding subsequent filter units as the needs of the city require.

Scituate Aqueduct

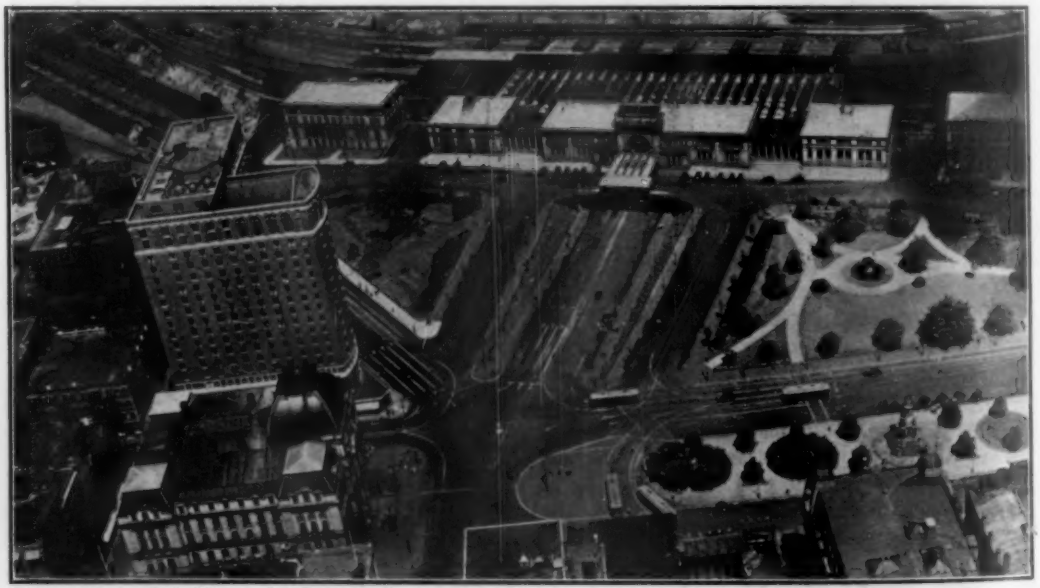
The Scituate aqueduct is about seven miles long. There are two 60-inch steel pipes from the base of the dam merging into a single 94-inch steel pipe lined with mortar and surrounded with concrete, leading to the filters. To the east of the filters there is a short stretch of 7½-foot reinforced concrete aqueduct as far as the tunnel portals. The tunnel is about 3½ miles long through solid rock, 7½ feet wide and 7 feet high inside the concrete lining. East of the tunnel is about a mile of reinforced concrete aqueduct 7½ feet in diameter, followed by nearly 2 miles of steel pipe mostly 66 inches in diameter, commencing with the existing mains of the present system at Budlong and Reservoir Avenues, Cranston.

Distribution System

The present distribution system will require some modification to take full advantage of the new supply. The Sockanosset and Hope Reservoirs are at elevations too low to serve a permanently useful purpose, and they will, it is expected, be eventually superseded by a new covered low-service reservoir to be built on Neutaconkanut Hill which will distribute water from about elevation 225. This new reservoir will serve to increase the pressure on the present low-service area by fully 20 pounds per square inch, and will serve by gravity more than one-half of the present high-service area. A new covered high-service reservoir superseding the present Fruit Hill Reservoir and about 30 feet higher will also eventually be built a short distance to the north. This reservoir will raise pressure in the area remaining in high service about 13 pounds per square inch. The construction of these reservoirs, as well as the construction of certain important additions to the main distribution pipes of the city, will, it is expected, be begun in the near future.

When the new system is completed and in operation, all pumping will be eliminated except that to the high-service area supplied from the new high-service reservoir, which area will be less than one-half that included in the present high service.

The Scituate Project is being built by the city of Providence Water Supply Board, B. Thomas Potter, Chairman; William A. Schofield, Henry A. Grimwood, William P. Vaughan, John Kelso, Joseph H. Gainer, and Walter F. Slade, Commissioners. Saumel N. Grammont is Secretary. Frank E. Winsor is Chief Engineer, and William W. Peabody, Deputy Chief Engineer. Malcolm Pirnie, of Hazen & Whipple, New York, is the designing engineer of the filtration plant.



Photograph by Fairchild Aerial Surveys, Inc.

VIEW OF EXCHANGE PLACE, PROVIDENCE, R. I., SHOWING THE UNION STATION, HOTEL BILTMORE, CITY HALL, AND THE VERY EFFECTIVE TRAFFIC MARKINGS USED TO CONTROL MOTOR AND PEDESTRIAN TRAFFIC

The Lighting of Thoroughfares or Arterial Traffic Streets

Streets That Are Cheerful, Rather Than Gloomy, Streets That Are Safe and Convenient, Rather Than Dangerous and Uncomfortable, Are Easily Attainable, at a Cost Not Prohibitive to Those Communities Which, Realizing the Benefits, Take Advantage of This Progress

THOROUGHFARES or arterial traffic streets leading out from the business to the residential sections in the large cities, and the streets in smaller cities that are portions of main highways, have developed severe requirements for lighting under the present conditions of transportation. These streets carry automobiles driven at a relatively high speed by those who often are unfamiliar with the street. Such streets contribute a large proportion of night traffic accidents.

There are two general ways of lighting thoroughfares. The first method is to extend the business lighting on these streets. The urgency of economy, however, usually dictates a somewhat lower expenditure per mile. Where this is the case, the practice is to omit every other lamp, leaving a staggered arrangement.

The second method is by the use of tall standards with bracket arms and pendant lighting units. Bracket type standards have the virtue of bringing the lamp out over the street surface, thereby increasing the utilization of light and reducing foliage interference. The lamp when over the pavement increases the driver's ability to see objects by silhouette against the bright area of light beneath the lamp and against the glint reflections or sheen from the pavement surface also, and both curbs are more distinctly revealed. In general, on the thoroughfare two such bracket standards properly located are equivalent in illuminating value to three upright white-way standards carrying the same size lamp. For the greatest effectiveness the bracket should be 6 feet or more in length, although the consideration of appearance will sometimes result in a compromise. The shorter the bracket, however, the less effective is the lighting, especially on wide streets.

Units on thoroughfares may be glaring at a mounting height which is entirely satisfactory in the business district. In the business district the light sources are viewed against lighted windows, show windows and electric signs. The contrast, therefore, between the bright units and their backgrounds is relatively much less than on the thoroughfares where the background is in general very dark. Glare depends to a large extent upon the degree of contrast between the light source and its background.

TYPES OF LIGHTING STANDARDS FOR THOROUGHFARES

This fact, together with the wider spacing, tends to make it desirable to mount the units somewhat higher on the thoroughfares.

On thoroughfares there are few, if any, building fronts which need to be lighted because of esthetic considerations; equipment which redirects the upward light onto the streets is therefore of advantage. For this purpose an axuiliary prismatic glass refractor which fits over the lamp is recommended.

In cities of 50,000 to 500,000 population, the recommended lighting for thoroughfares or arterial traffic streets is one light of 10,000 to 15,000 lumens per post, the posts being spaced 100 to 150 feet, and staggered. The light source on upright units should be mounted from 15 to 18 feet high and on bracket units from 20 to 25 feet high, the brackets being 6 feet or more in length.

The recommended practice in cities of less than 50,000 is one 4,000- to 6,000-lumen lamp per post, spaced 150 to 200 feet apart and staggered. The mounting height of the light source on upright units should be from 15 to 18 feet, and on bracket units 20 to 25 feet, the bracket length being 6 feet or more.

Is There a Vicious Circle of Transit Development and City Congestion?

By Daniel L. Turner
Consulting Engineer, New York Transit Commission

THE answer to this question must be in the affirmative. Yes! There is a vicious circle of transit development and city congestion. Now the next question is, can the trouble be cured? Let us see about it for a moment.

The vicious circle has been created:

First, because the potential possibilities of using the land are almost unlimited on account of insufficient restrictions, and

Second, because this potential land use always will be developed to the utmost extent that the transit facilities will permit.

A Policy Fraught with Dangerous Consequences

For example, a business building can be erected on a single block that will accommodate a circulating population in and out of over 100,000 people in a day, or will easily supply space for 15,000 workers in the building, who, in turn, will saturate over four times the sidewalk space in ten times the roadway space normally available around it, and will also require one-fifth of the full capacity of an existing four-track subway to serve it in the rush hours. Five such buildings would fully utilize the entire capacity of a four-track subway. A single big shop can be built on another block that will serve 75,000 customers a day, or coming and going will create 150,000 transit passengers. And in the residence sections block after block of home barracks ten and fifteen stories high will develop a population density at the rate of fourteen to fifteen hundred people per acre.

It does not take much of this kind of land use to saturate all of the rapid transit facilities that can possibly be constructed through any given area. Manhattan below City Hall is very nearly saturated now as far as street and transit facilities are concerned, yet its capacity for potential development is two and one-half times greater than its actual development. The remainder of Manhattan probably has a potential development capacity of six or seven times its actual development. Therefore, from these illustrations of the development possibilities, it is apparent that there is opportunity still for vast building operations in business Manhattan —for an almost unlimited development, if enough rapid-transit facilities can be supplied to serve the area.

To continue the transit policy of paralleling and duplicating existing facilities, and thereby permitting and encouraging the areas served to develop almost without limit for both residence and business purposes, in my judgment is fraught with dangerous consequences to the city. Our street systems will soon be strangled. Neither the sidewalks nor the roadways of the streets will be able to accommodate the traffic that will be produced. The city's fire protection machinery will not be able to function, and consequently the fire hazards will be greatly increased. The public health will be jeopardized and the congestion problems of all kinds that are developed will soon become a public menace.

Only Two Alternatives Available

But since under the conditions of unlimited building possibilities the expanding of rapid-transit facilities in congested sections only makes the congestion worse, then we must change our rapid transit policy:

Either we must restrict or limit the building operations in such areas, thus balancing the land use with the transit facilities available, and thereby relieve congestion;

Or, we must change our transit construction policy, and build new rapid-transit facilities through outlying unpopulated areas and route them through unbuilt business sections—in other words, construct decentralizing rapid-transit lines, thus inducing the use of undeveloped sections for both home and business purposes, thereby attracting the population away from the congested districts and in this way relieve the congestion.

As I see it, these are the only two alternatives available for curing our trouble. But even by one or the other of these means, the only way that the cure can be effected is by educating the people themselves to the necessity for a new rapid-transit policy. The people who suffer from the congestion are the ones who clamor for the relief. They do not want to move their homes to a new location or to change their travel habits. They demand the obvious thing. They demand new lines that will serve them as they are—that is to say, lines that will take them from their present

homes to their present working places. This demand for the duplication of existing facilities cannot be resisted, particularly when there is no population to agitate and shout for the thing that ought to be done—for the decentralizing lines that should be constructed through the unpopulated and undeveloped sections. The officials charged with the duty of locating and constructing the new lines cannot withstand the public pressure. Therefore they are not responsible for the conditions. But it is the people who complain most about the prevailing congestion who are compelling the wrong kind of transit development that in turn is perpetuating the evil that they themselves are crying out loudest against.

Consequently, in the last analysis, the cure for our vicious circle resolves itself into educating the people as to the causes of the trouble and to the necessity of constructing new rapid-transit lines that will decentralize our city activities.

EDITORIAL NOTE.—The foregoing are the concluding paragraphs from an incisive indictment of past transit expansion policies in New York, read at a recent meeting of the Snag Club (an informal group meeting now and then to talk over various methods of getting rid of snags). Mr. Turner's paper was so full of practical sense useful to all cities that the *National Municipal Review* has published it in full in its June number.

And This from Los Angeles

A MEETING of minds of East and West on this question of the relationship of transit development to city congestion is evident from an article in the July number of the *National Municipal Review* on "Congestion De Luxe—Do We Want It?" by C. A. Dykstra, Efficiency Director, Department of Water and Power, Los Angeles. The similarity of the Los Angeles expert's ideas to those of Mr. Turner is shown by the following quotations from Mr. Dykstra's article:

"Confronting city fathers in all of our rapidly growing cities is a problem that is insistent and yet, under our prevailing philosophy of city planning, seemingly impossible of solution. It is the fact of increasing and ever increasing congestion, congestion de luxe. The physical result of this congestion is the slowing-up of all transportation facilities and the consequent tying up of traffic. Any trucking concern will furnish astounding figures as to the time it takes for the delivery of materials in the built-up sections of our large cities. The human and social problems raised by this fact of congestion are no doubt even more important that the merely physical difficulties involved, but they are not so obvious and tangible. They impinge upon the congestion problem, however, and find some expression in the popular demand for more rapid transit.....

"Is it inevitable or basically sound or desirable that larger and larger crowds be brought into the city's center? Do we want to stimulate housing congestion along subway lines and develop an intensive rather than an extensive city? Will rapid transit spread the population anywhere except along the new right of way? Is it ultimately desirable to have an area of abnormally high land values with its consequent demand for the removal of building-height restrictions? Must all large business, professional and financial operations be conducted in a restricted area? Must the worker be transported through the heart of the city to get to his work? As a matter of fact, are not all of these assumptions, which were controlling in the past generation, being severely arraigned by thoughtful students?....

"At the present moment our cities are faced with a double-barreled problem—mass transportation and the ever-increasing individual transportation units which clog our streets and make our traffic congestion worse. The automobile now contests the surface of the street with the street car, and popular sentiment in many places demands that the street car give way and go underground or overhead. Automobile owners and drivers suggest that it would be a fine thing to take the street car off the streets, and the street car rider is easily convinced that such a solution will shorten the time between the city and his home. Business interests who want bigger and bigger crowds downtown—who see in congestion not an evil but a great good—become the natural leadership in this seemingly natural and normal solution, the building of rapid-transit facilities in subways.

"Thus our congestion problem becomes at one stage the rapid-transit problem, and our engineers in many cities are submitting comprehensive subway and elevated plans to city councils and traffic commissions.....

Congestion Relief by Rapid Transit—A Delusion and a Snare

"The history of rapid-transit development in American cities carries with it its warning to Los Angeles. The chief argument for rapid transit—congestion relief—is a delusion and a snare as far as sound city planning is concerned. A population can be spread out without rapid-transit or street-car facilities. The private automobile and the bus have turned the trick so far as transportation is concerned. The development of the motor truck and the availability of electric power for manufacturing will continue to decentralize the industrial district. There can be developed in the Los Angeles area a great city population which for the most part lives near its work, has its individual lawns and gardens, finds its market and commercialized recreational facilities right around the corner, and which because of these things can develop a neighborhood with all that it means.

"Under such conditions city life will not only be tolerable but delightful—infinitely more desirable and wholesome than the sort induced and superinduced by the artificially stimulated population center which constantly must reach higher and higher into the air for light, air and a chance to see the sun. It will be a city in which children will not be discriminated against."

"Start Parks and Stop Skyscrapers!"

MUNICIPAL MURDER in heavy type at the top of the first page, and the slogan "Start Parks and Stop Skyscrapers!" across the bottom of the other eleven pages, give distinction to the July Bulletin of the City Club of New York.

Emphasizing the fact that 932 persons—more than a third of them little children—were killed by motor vehicles in the streets of New York City last year, and that the present rate is double that of five years ago, the Bulletin attempts to arouse both the conscience and intelligence of citizens and officials in combatting the Dance of Death that goes on between the sidewalks of New York.

MUNICIPAL MURDER

Motor Vehicles Now Kill Three People a Day in the Streets of New York

ONE IN EVERY THREE A CHILD

"To tell the truth, it is more than mere motor murder. *It is municipal murder.* And that is where the City Administration and the City Club come in. For we of New York allow it to go on.

"Yes, to be sure, we do. Is it to be said that we, the people of New York, cannot, through government, stop this Dance of Death between the 'Sidewalks of New York'? That we cannot control the appetite of motor vehicles? That we are baffled and beaten, definitely and permanently, by the lethal avocations of machines that should be our servants and not our masters?

"There can be no doubt that one good way to stop the killing of children in our streets is to provide more parks and playgrounds, for them as well as their elders. We have nowhere near enough parks and playgrounds in New York. We never did have anywhere near enough. The city has been far behind in this for over a hundred years. The immemorial playground of New York's children is the street. Always fraught with some degree of peril, the New York street is no longer a place for a child to play. For the game now played there is not 'London Bridge is Falling Down'; it is Hide-and-Seek with motor trucks. If the child lives, it wins the game. If the child dies, the motor truck wins. That is the game. Simple.

"Crowded and terrorized by the modern motor vehicle, the New York street is today little better than an arena for a modern form of murder. It would seem that now, if never before, the city should carry out an immediate and giant plan to establish parks, and yet more parks and playgrounds, in every part of its territory, to take the place of these murderous avenues and streets.

"New York's municipal murder is not to be decreased by the creation of more parks and playgrounds unless other essential steps also are taken at the same time. There are at least a dozen other different steps that must be taken at once and with energy. It is obvious that with more parks and playgrounds there will be fewer children still playing in the streets, just because some of them will play in the new parks and playgrounds. But there will always be children playing in New York's streets, no matter how many parks and playgrounds we establish. One human reason is the mother's insistence that they play within her sight or call while she is doing the work in the home that prevents her from going with the children to a nearby park or playground.

"In other words, with children and adults still using our streets we shall still have the motor vehicle in these same streets, and the yearly regiment of the dead will be recruited just as steadily, unless we take other means to curb the dangerous propensities of these motor engines of death.

"There are considerations of traffic regulation, of sure punishment for murderous drivers, of street alteration, of new highways, of basement parking, and of various schemes for staggering traffic of all kinds, both as to time and as to space. These problems must be better met than is the case at present.

Skyscrapers Kill Children

CITY CLUB URGES LOWER LIMIT TO HEIGHT OF FUTURE BUILDINGS

Proposal Put Up to Mayor's Committee on City Planning and Survey

"But, after all, these traffic matters are mere palliatives—bits of courtplaster stuck on open wounds. They do not cure and they will not cure. They are not enough. It has become necessary to go farther and deeper into the problem, and to strike at what may be conceived to be the roots of the evil.

"One thing is certainly sure: A cluster of high buildings for office or manufacturing work brings together a daily accompanying cluster of thousands and thousands of working human beings. Inordinate congestion and crowding of buildings onto limited areas of land results in the buildings shooting up into the air. The buildings become so high and consequently hold so many thousands of workers, that the city's streets below, which were never intended for such congested structures, are not spacious enough, nor can they ever be made spacious enough, to hold comfortably

THE DANCE OF DEATH THAT GOES ON BETWEEN THE SIDEWALKS OF NEW YORK

Suggested by the Bulletin of The City Club of NewYork, and drawn for THE AMERICAN CITY *by MORRIS*

the crowds in the buildings that tower above them. Already in some parts of the city we have passed the limits of street capacity to a degree that has made transit of human beings impossible on either the surface of the streets or through the subways below the streets, without an uncomfortable, unsanitary, indecent, offensive and dangerous crowding and packing and crushing of human beings—men and women alike—against each other, in their vain endeavors to cope with this octopus of structural congestion. To build more subways is to accelerate the financial cancer that already besets the city.

Freight Transportation an Important Element in Street Congestion

"But above and beyond all these considerations of discomfort and indecency in the lives of working men and women in New York, the grim outstanding fact of the matter is the creation of crowding in *freight* transportation through the surface streets, as well as in the transportation of human beings on and under the streets. These high buildings—skyscrapers—must be supplied with merchandise of all kinds. In turn, the workers in the buildings produce merchandise and freight of all kinds, which must be taken out of the buildings and must be distributed on its way to the consumer. The only sluices for this intake of freight for skyscrapers, and this out-go of freight from skyscrapers, are the gridironed surface streets in the congested neighborhoods. This means more vehicles—more and more of them—cruising and crushing through the insufficient streets. This means that motor vehicles—just as water trickles, turns and seeps—will turn to the street of least resistance and utilize every possible street and avenue—in Manhattan, from river to river—in order to find the least difficult way to and from the skyscrapers. This means motor vehicles roaring through every single street in the city. This means murder of children and adults in all those streets. This means municipal murder unless we, the people of the city, take steps to reduce the motor vehicular congestion that now exists.

"The skyscrapers that breed the motor vehicles are still going up, one after another, so that the air resounds with the rattle of the riveters. The motor vehicles that the skyscrapers breed are still increasing in number and tonnage, and are still crowding more and more into hitherto unused streets. The children at play in streets far removed from skyscraper centers are still being killed by these motor vehicles at the rate of another child every day in the year. The Dance of Death between the 'Sidewalks of New York' still goes merrily on."

Height Limitations Under New York's Zoning Ordinance Are Utterly Inadequate to Prevent Congestion

THAT the "vicious circle" described by Mr. Turner in the paper quoted on page 314 is coming to be recognized by many leaders of opinion in New York City is evident from the newspaper comments on a suggestion by Major Henry H. Curran, Counsel of The City Club of New York, in a recent address before the Junior Board of Trade and Transportation of that city.

The editorial comment of *The World* (issue of June 18, 1926) was especially forceful:

"Mr. Curran urged that the city limit the height of future buildings in Manhattan to the width of the avenue or street on which the building faces. And he said that this step should take precedence over all others. This is not the time to come to a definite conclusion as to just what limitation ought to be placed on building in Manhattan. But this is the time to understand the principle on which Mr. Curran's proposal rests. For that principle is sound and it is fundamental. Unless the city understands it and adopts it, there is no hope of real relief from our transit and traffic evils, nor from the very serious financial difficulty into which, by reason of an unsound transit policy, the whole City Government has drifted.

"Look at the new subway now being built on Eighth Avenue. The ostensible purpose of that subway is to relieve the indecent congestion on the existing subways. Will it give relief? Look at what is happening on Eighth Avenue. Faster than the new subway can be dug enormous skyscrapers are being pushed up all along the route. In those skyscrapers will work thousands of men and women who will live in the Bronx, on Long Island, in Westchester and in Jersey. Long before the subway is completed a new multitude will be there waiting to jam it to capacity. The street surfaces will be more crowded than ever with the additional trucks and cars serving the new skyscrapers. And the city's credit tied up in a new subway which cannot be run as a solvent concern with long hauls at 5 cents, will be that much nearer exhaustion. In the meantime money desperately needed for parks, for playgrounds, for salary increases and other city purposes will not be available because the credit of the city is frozen in a subway that sharpens rather than relieves the transit problem.

"New York can build skyscrapers faster than it can build subways. New York will build skyscrapers as fast as new subways are projected. Therefore New York can never solve the transit problem merely by building subways. It must first take steps to limit the artificially stimulated increase of demand for transit. Then only can it hope to provide an adequate supply. This is Mr. Curran's argument, and, leaving aside all the detail as to what the limitation on building ought to be, the argument is, in our opinion, unanswerable."

An English Planner's Visualization of an Ideal City Layout

IN a discussion of "A Development Scheme for a Town and Its Surroundings and Its Relation to Regional Planning," at one of the 1926 meetings of the Town Planning Institute of England, the chart here reproduced was submitted by H. V. Lanchester, Past President of the Institute. From Mr. Lanchester's description of his plan, as published in the *Journal of The Town Planning Institute*, the following paragraphs are quoted:

"One is bound to assume that the central area will be occupied by the buildings for administration and recreation, hotels and large retail stores. The university and technical institutes would be best placed here, also, in which case it will be seen that the civic center would not be a small, closely-packed group, but would occupy an area at least half a mile in diameter. Moreover, apart from this as merely a "spending" quarter, it will include provision for the concerns coordinating business activities, such as banks, exchanges, etc. Radiating from this there would be certain areas appropriate for industrial or commercial purposes, served by their transport routes, road, rail, or water, giving us an irregular star.

A STAR-PLAN FOR A CITY

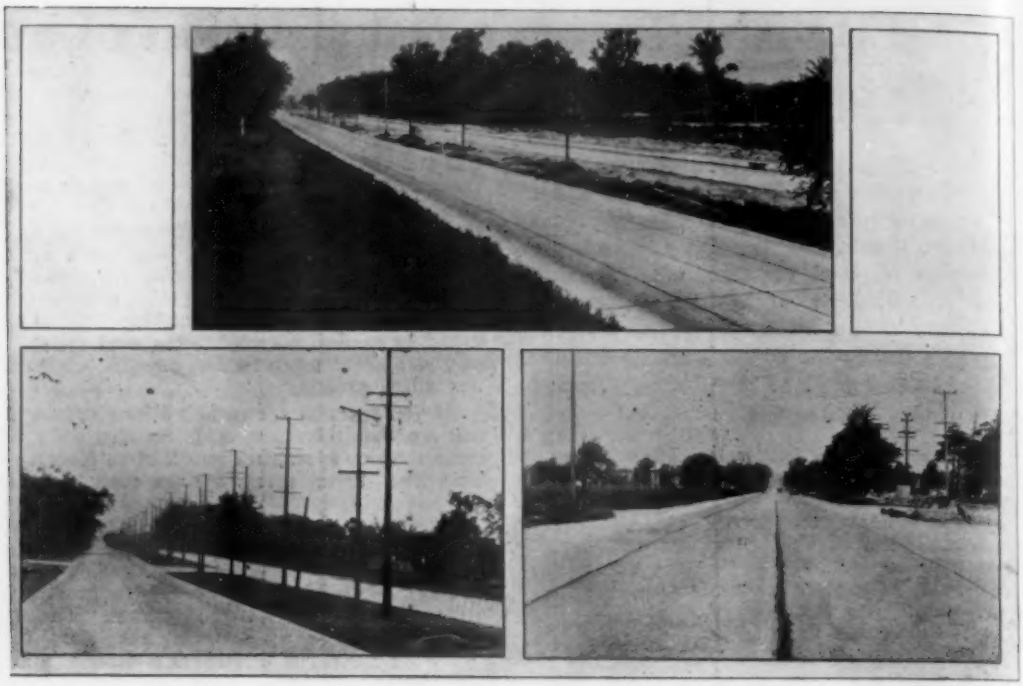
"Now it would look as if the general housing would drop into the spaces between the points of this star, which is what would happen if no steps were taken to carry our citizens elsewhere; but with the acceleration of transit, we are enabled to take them out to the points of the star, where they would be more or less in the position of a satellite village with open country on three sides. Locations of this character would be appropriate for the larger proportion of the population, but there would be a percentage having a claim to a more central position, and it is likely that one of our star-rays less suited to industry could be given over to a "west end" for those whose means enable them to counteract the drawbacks of living in an urban area.

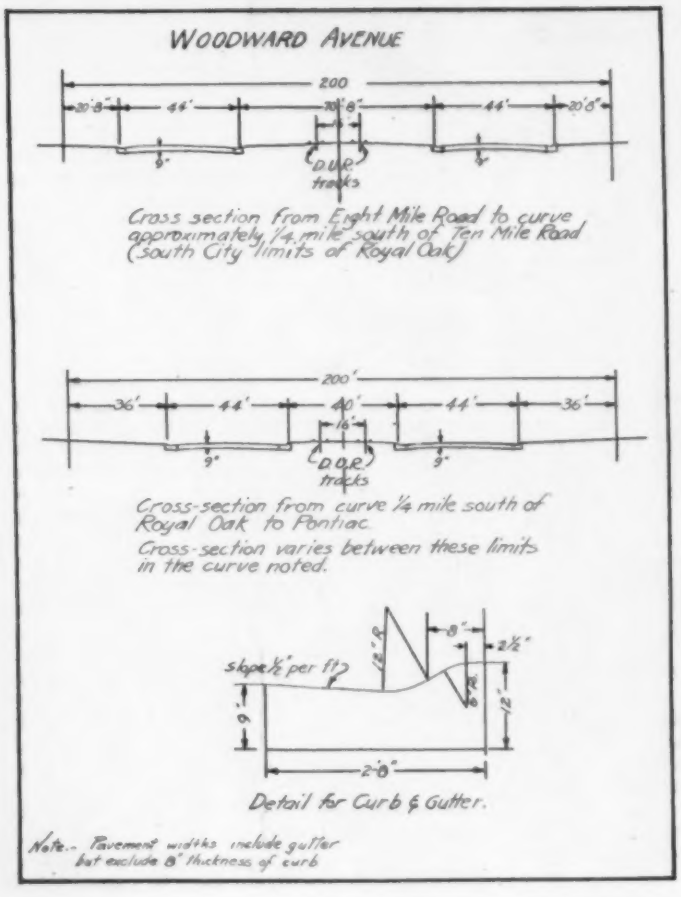
"In thus distributing the population, we must not overlook the problem of the family group, which may include workers of various types, employed perhaps in different industries, or partially in industry and partially in the shops and offices of the central area.

"Normally, the home would be at the point of that star-ray where the worker was employed, but the communications must be so organized that quick transit is available to other parts of the city. The positions of the radial routes can easily be conceived, and they would loop round a complete circuit suitably aligned near the outside of the central area, but it is probable that an outer circuit with a radius of something over a mile would be needed to complete the road system, as well as another much further out still, connecting the village groups.

"If you visualize the pattern I have drawn, you will see that there are voids between these two circuits which it requires an effort to conceive as other than urban areas, but we must make the effort and try to imagine our city as a star rather than as a constantly swelling mass if we are to get on the right track. To begin with, the star form gives a certain latitude for expansion in the industrial sections without these having to fight their way into the residential. The intermediate spaces would also provide playing fields for the clubs and grounds connected with the industrial sections without these having to fight their way into the residential. The intermediate spaces would also provide playing fields for the clubs and groups connected with the industries, and for goods-marshaling yards and aerodromes. But we must regard them as being, to a large extent, non-urban areas, and try to dismiss from our minds the assumption that mere distance from a given center determines the question whether an area shall be urban or otherwise.

"You will see that I have ignored the idea of a ring belt, which does not appear to me to afford a logical solution of the problem of a growing city, as it is sure to become an artificial line of demarcation, increasing the difficulty of adjusting the character zones and also the cost of transit. I, of course, assume a good provision of open spaces, and should regard parkways connecting the village suburbs as desirable. In order to assist us in defining our objective, we might assume these suburbs as placed at a distance of some four miles from the center, so that they would stand in a ring twenty-five miles in diameter. Allowing for each a population of 50,000, and a mile for their width, you could comfortably locate eight round this circle with a space of two miles between them; for a larger population than, say, half-a-million, you would have to extend the distance."





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VIEWS OF THE WOODWARD AVENUE PROJECT, ILLINOIS STATE TRUNK LINE PROJECT 10-39 BETWEEN DETROIT AND PONTIAC, MICH.

Above, section of completed pavement; the westerly half completed, the easterly half under construction. Each pavement is divided into four 10-foot strips, the black marking being the bituminous material used for filling construction joints. Lower left, completed section not yet opened to traffic when picture was taken. This view is on the west side of Royal Oak. Lower left, view looking down the center of one pavement

SECTIONS OF WOODWARD AVENUE, AND DETAIL FOR CURB AND GUTTER

(At left)

The Woodward Avenue Highway Project from Detroit to Pontiac

By G. C. Dillman

Deputy Commissioner and Chief Engineer, Michigan State Highway Department

THE Woodward Avenue Project, known as Michigan State Trunk Line Project 10-39, between the north city limits of Detroit or the Wayne County line and the south city limits of Pontiac, now consists of two sections; the north section, lying between the south limits of Pontiac and the north limits of Birmingham, 5.529 miles in length; the south section lying between the south limits of Birmingham and the Wayne County line, being 7.654 miles in length. This makes the total length of the project 13.183 miles, exclusive of a little better than one mile on the route lying entirely within the city of Birmingham.

The attached diagram shows typical cross-sections being built between the Eight Mile Road, which is the south end of the project, and a curve approximately one-quarter mile south of the Ten Mile Road, or the south city limits of Royal Oak. Provision is made for a strip 70 feet 8 inches wide for Detroit United Railway tracks between the pavements. This project when completed will have two 40-foot pavements, on each side of which is a 2-foot gutter, making an over-all driving width of 44 feet for both northbound and southbound traffic.

The section between the south limits of Royal Oak and Pontiac provides for a 40-foot strip between pavements with a wider strip between the right-of-way limits and the outer curb. The special details for curb and gutter are designed so that a vehicle may be driven over the curb without damage to the structure.

Both pavements have now been practically completed between Detroit and Pontiac, with the exception of a short section of the easterly pavement. This portion cannot be built until the Grand Trunk Railroad has been moved to the east. The State Legislature in special session early this year authorized the moving of the railroad so that the Woodward Avenue project could be completed throughout.

Notices for Water Bills and Other Charges Due

By Alfred R. Hathaway

Water Registrar, Springfield, Mass.

THE practice in Springfield, Mass., in notifying consumers and property owners of water bills and other charges due the Board of Water Commissioners, has proved very successful. The original bills are mailed by the City Collector to the consumer as a first notice. After the prescribed period for payment, the Collector then mails a courtesy reminder to the delinquent on a printed form which is labeled "Second Notice." After waiting a few days for a response to this notice, the Collector sends a list of the remaining delinquents to the Registrar's office. The Registrar then sends to each such delinquent who has not responded to prior notices a "Final Notice," with a three days' limitation. For many years this last notice has been sent by registered mail and a return receipt card requested from the Post Office.

This practice works out very well, but the increase in the registered mail postage made the cost of delivering these notices excessive. To endeavor to reduce this, arrangements were made for the inspection force to care for such registered delivery.

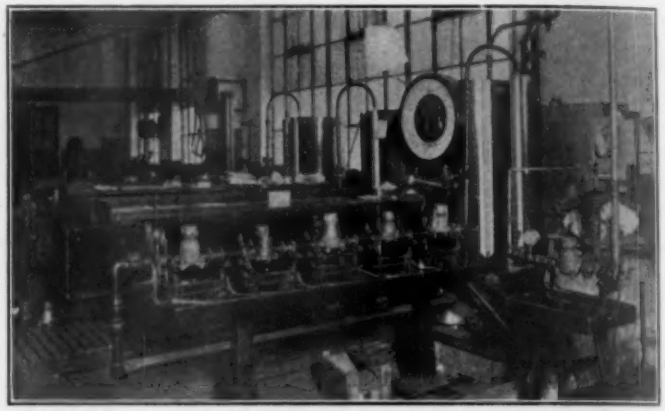
In his annual report, summarizing the work of the inspectors, submitted December 14, 1925, to the Registrar, the Chief Inspector made several interesting statements and recommendations. He called attention to the fact that the inspectors at that time had been delivering during a period of eight months all the final notices for unpaid water bills, a matter formerly done by registered mail as mentioned above. In this time, 1,224 notices were delivered, at a saving of $244.80. Unlike delivery through the Post Office, however, every notice was delivered to the present owners or agent of the properties involved, after corrections in address and changes of ownership had been reported.

In handling the final notices the inspectors found that in many cases the same people were served with notices month after month and that in nearly all such cases there was no intention to pay until after receipt of the final notice. Fully 70 per cent of the delinquencies in payment of water bills seemed to be deliberate. In view of these facts, the Chief Inspector suggested that a charge of 25 cents be made to the consumer for the delivery of each final notice. It is perfectly obvious that in not making such a charge a premium is placed on delinquency and the delinquents are given service which is not given to those who pay their water bills promptly, and for which the delinquents should pay.

Chicago Prepares for Universal Metering

Extensive Tests Being Made to Determine the Relative Accuracy and Durability of Various Types of Water-Meters

EXTENSIVE water-meter tests are being run at the meter shop of the city of Chicago, on Sacramento Avenue, by the Department of Public Works, Bureau of Engineering, under the supervision of a meter test board composed of F. C. Martini, Engineer of Contracts, Arthur T. Seaman, Mechanical Designing Engineer, and Robert A. Bauld, Efficiency Engineer. The purpose of these tests is to determine the relative accuracy and durability of the various makes and types of water-meters, the results of the tests to serve as a basis for future decisions in water-meter purchases.



METHOD USED BY THE CITY OF CHICAGO IN TESTING METERS FOR ACCURACY AT VARIOUS FLOWS

This view shows three No. 5 Ford meter-testing machines with elevated tanks, the machine in the foreground having also a Toledo scale

In the tests are three of each model of 5/8-inch meter, 21 models being furnished by 13 companies, or a total of 63 meters. Each meter is first tested for accuracy at flows of full stream, 1/4-inch, 1/8-inch, 1/16-inch, and 1/32-inch, and for loss of head at all flows under an initial pressure of 25 pounds. Then it is put into a service test and run at a rate of approximately 12 gallons per minute until 12,500 cubic feet has been passed. Then it is removed, tested again for accuracy as at first, and put back into service test for another run of 12,500 cubic feet, being then run and tested alternately until a grand total of 250,000 cubic feet has been run through each meter. To facilitate placing and removing the meter on capacity runs they are held in a special rack consisting of Ford double-valve yokes, set in parallel between the pressure and discharge mains.

METERS BEING RUN FOR 12,500 CUBIC FEET BETWEEN ACCURACY TESTS IN CHICAGO

These meters are held in Ford yokes to facilitate installation and removal. In the right foreground is the yoke fitted with manometer for reading pressure losses

After each meter has been run the required 250,000 cubic feet and received its final test, it is taken apart for examination and measurement. Accurate measurements are taken of the disc, disc chamber, ball and ball socket, to determine the amount

of wear. The wear on the gear train is determined as accurately as possible by inspection.

From these tests and measurements each meter is given a rating under the headings of accuracy, wear, and pressure loss, accuracy counting 50 per cent, and wear and pressure loss each 25 per cent. Each of these factors is subdivided, the accuracy factor being made up of sub-factors depending on the accuracy at various flows, the wear factor depending on wear on ball, ball socket, disc and chamber and gear train, and the pressure loss factor being made up of sub-factors for losses at various flows. It will be noted that the sum of any meter's rating under the several headings will give a figure which might well be called the percentage of value or desirability.

In future contract awards each meter will be judged by its price and by its value as determined in the test. While the test is costing the city several thousands of dollars, it will more than save its cost in the purchasing of several hundred thousand water-meters, in that it will make possible decisions based on known facts.

From the Old Oaken Bucket to a Modern Safe Water-Supply

By J. A. Jensen

Supervisor, Water-Works, Minneapolis, Minn.

WHEN a survey is made of the field of water-works activity in this country, a remarkable development is observed in all branches and new fields during the past fifteen to twenty years. Records show that thirty years ago there were about 3,000 water-works plants in operation, while today the number is well over 10,000.

The transition from the "old oaken bucket" to a delivered water-supply at the faucet is a subject of considerable interest, but the story of the travel and processes through which water passes in the modern plant is truly wonderful. In the earlier days water-supply was largely a problem of transportation of such good-appearing water as might be conveniently available.

Contrast this with the water-works plant of today. The standards of living, protection of health, and the general public welfare have had their influence upon water-works practice. Public health service, which has contributed largely to the sanitary features of water-supply improvement, has itself developed in like proportion, and its beneficent work is being appreciated more and more. The day when the Legislature leaves the Board of Health to struggle through with a short budget while large appropriations are made for the inspection of seed potatoes is passing. The conservation of human life is being considered just as essential as the prevention of hog cholera or the suppression of the potato bug.

Public convenience, fire protection, sanitation of streets, the utilization of used and wasted water as the vehicle for the operation of sanitary sewers, and the application of water for the various industrial processes and domestic purposes, make water the most essential necessity of modern life. To make the supply satisfactory for all these manifold purposes, it is incumbent upon water plants to meet a variety of present-day requirements, which in turn has given rise to many intricate problems requiring for solution different forms of design.

The problems cover a broad field. There are questions of jurisdiction over, and control of, watersheds, location of impounding works, gravity lines and intakes. There are problems of quality, pollution, and contamination involved in most cities. These are supplemented by the problems of building works for subsidence, coagulation, filtration, and sterilization. In some places plants are devised for the removal of hardness and in others for aeration and the reduction of carbon dioxide. All of them have their own peculiar problems of distribution involving gravity or pumping and perhaps re-pumping. Besides these features there may be problems of storage and equalizing reservoirs. Impounded supplies may require patrols or the application of algaecides.

Besides the technical and mechanical features there are also problems of financing, budgeting, bond issues, valuation, and rate making. There are methods for placing the water-supply on the public market, metering, billing, collecting, and general accounting. Lastly, the routine work of construction, maintenance, and operation is universal, and hand in hand with it goes the usual repair work.

More detailed reference to specific achievements would require extensive elaboration. Much valuable work has been accomplished in

the adoption of standards in manufacture and quality of materials for use in water plants, and also in the methods, processes, and products offered in the business.

Pipe

Pipe specifications have tended to uniformity of manufacture and convenience of the users. Experiments have been made with semi-cast steel pipe and more recently with centrifugal cast pipe. Two methods of centrifugal casting have been developed—the spiral cast and the mono-cast—which have favorable promise both in economy of manufacture and improvement of quality of the iron.

Materials used in service pipes, and jurisdiction over them, are live issues everywhere. Different waters require different conductors, and this largely determines the nature of the materials used. Various forms of lined iron pipe, unlined iron pipe, and lead are generally used. On lead pipe the wiped joint has given way to the mechanical flange coupling, which is simple and satisfactory. On account of the increased cost of lead, the use of copper tubing and ground joints has been resorted to where the nature of the water will permit. Depth of service is important. A few inches of greater depth is preferable to the annoyances of freezing and subsequent artificial thawing.

Pumps

Twenty years ago the centrifugal pump was somewhat of a novelty. The triple-expansion pumping-engine was at the zenith of popularity, and rightly so. Steam and water power prevailed as the principal forms of energy for pumping water. While this form of engine is still excellent equipment in large installations, especially where economical fuel is available, the centrifugal pump has nevertheless come into almost universal use, either solely or in combination with other forms of pumps. The limited size and space required, and the smaller investment for pumping-plant and equipment, are some of the points in its favor. For driving this type of pump, electric and steam turbine power have been the most suitable on account of the similarity of speeds. For low lifts other forms of energy are satisfactory. The advancement in design of impellers and wearing rings has produced pumps of excellent efficiency. They are capable of meeting a wide range of conditions, and are simple in operation and economical in upkeep.

Filtration, Chlorination and Iodization

The tendency in filter development has been largely confined to the rapid sand type. During the past fifteen years a remarkably large number of large and small plants have been built, based upon well-established principles. A number of refinements of design have been made and introduced from time to time. There has been a tendency toward larger beds, less sand, and higher rates of wash. Periods of coagulation and manner of mixing have been studied and methods established subject to local conditions and the character of the water. Forms of strainer systems have been improved, and beds are now usually made in single units instead of two halves. For economy of construction, subchambers are omitted unless topographical conditions are more favorable for sub-auxiliary storage. There has been much improvement in mechanical apparatus, such as chlorinators, chemical feed machines, and equipment for handling materials, particularly vacuum conveyors for bulk granular supplies.

Besides filtration, other forms of treatment are needed in certain localities, all of which require specialized construction for the purpose. Sterilized water for the elimination of typhoid having been produced, there is now advocated the restoration of iodides in the water-supply for the prevention of simple goitre in growing children.

Bacterial Purity

A good-appearing water of twenty years ago will not necessarily meet the requirements of present-day standards of purity. If it is not free from contamination it must be made so. Fortunately, the progress of water purification makes this possible, so that a water-supply does not have to be rejected because it may not be satisfactory in its raw-water state. The standards of the American Water Works Association, American Public Health Association, and Treasury Department must be met and enforced by the proper administrative agencies. The various forms of man-made pollution and contamination have given rise to new conditions requiring special methods of prevention as well as correction.

Some of the advancement in laboratory practice is worthy of note; in fact, the wonderful laboratory work in water biology and chemistry has been built up in recent years on account of the requirements and development of purification works, and thus has been produced a new progressive science. All the agencies employed in various treatments and general filter practice are of high importance. The study of hydrogen-ion concentration, for instance, bears an important relation to the economical use of coagulants and affords better control of treatment as well as cost of purification.

Hand in hand with water purification, the

progress of public health service has been of the utmost importance. Water-borne disease is a liability for which any water-supply may be held responsible. The excellent work of state boards of health, together with the national health service, has brought out new safeguards and standards of purity of water-supplies, not only for local consumption, but also for interstate carriers. Much has been done in the way of preventive and remedial measures in private as well as public water-supplies. Typhoid has been practically conquered.

Management and Standardization

In like manner the operation and maintenance of plants and systems for the distribution of water have been facilitated by modern appliances and improved methods affecting this work in manifold ways. There are many forms of labor-saving devices for meeting the advanced cost of labor and materials. Much standardization work has been accomplished which assists the water-works man in many ways and tends to simplify his labors and reduce his unit costs.

Finally, back of this activity is management of plant and works. The advancement of the art has brought out new problems of financing projects, establishing budgets, and making rates, as well as accounting and other administrative detail.

Importance of Water-Works Service

This brief review of progress must impress the mind with the multiplicity of activities required of the water-works man to give the public its most important necessity of life. All these phases of the water-works business indicate a broad and complicated field of endeavor which calls for men qualified to undertake the work. It also emphasizes the importance to the water-works man of the necessity of being well informed in all branches of the service. He must keep step with the advancement and progress of the art.

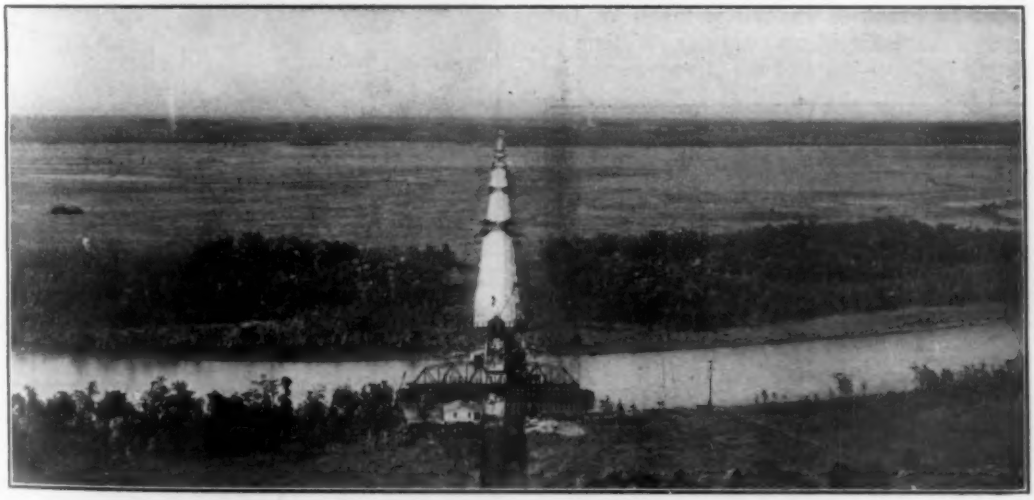
The fields of mechanics and engineering, of chemistry and bacteriology, and the needs of public health have all created the necessity for men willing to make this work their life vocation. The engineer profiting by experience and new developments has produced works that are marvels of their kind. The study of different waters and the elements and organisms contained therein have presented conditions to try the ingenuity of the operators and scientists in working out the solution of problems connected therewith. All these factors form the basis for improved design and advancement in all water-supply endeavor for the benefit of humanity.

ACKNOWLEDGMENT.—From a paper read before the Montana Section, American Water Works Association.

Notable West Florida Bridge Opened

ON July 8 the Escambia Bay Bridge for traffic between Pensacola and the west to the other sections of Florida and the east coast was formally opened. The bridge has been under contemplation and construction for the past six or seven years. Its completion will materially shorten the distance and aid in eliminating the ferry inconvenience between points in Alabama and farther west and Florida.

The structure is a 3.2-mile bridge and causeway across the headwaters of Escambia Bay, the delta of Escambia River ten miles east of Pensacola. It consists of a series of steel spans, creosoted timber trestles, and earthen fills. The fills are 30



VIEW ALONG THE CENTER LINE OF THE NEW ESCAMBIA BRIDGE

feet in minimum width at the top, with 2 to 1 side slopes approximately 14 feet above the level of the marshes, which are about at sea level. The material of the fills was brought in from a borrow-pit located in the highlands adjacent to the bridge site. Standard-gage railroad equipment was used for this purpose. The contractor for the fills and trestles was the Hardaway Construction Company of Columbus, Ga. Approximately 400,100 cubic yards of earth work was placed. E. W. Parker, Tampa, Fla., was subcontractor on the earth work.

The Atlanta Bridge Company was contractor for the erection of the steel spans and immediate approaches. The steel structures total 700 feet in length. The draw-span is of the center pier swing type 200 feet long, giving two 80-foot clear openings for navigation. The total weight of the structural steel is 701,325 pounds. There were 901 cubic yards of class-A concrete and 23,338 pounds of reinforcing steel. For the steel fixed spans, 17,085 lineal feet of foundation piling was driven. A total of 29,765 linear feet of cresoted timber piling with 246,542 feet B. M. of treated timber was used in the timber trestles, bulkheads, etc.

The approaches have a 20-foot roadway of sand-clay and two 5-foot strips of sod. Steel wire link guard fencing is placed on the shoulders for the full length of the fill, which constitutes 2.3 miles of the total length of the project.

The total cost of the structure with approaches is about $1,200,000, according to R. L. Bannerman, Division Engineer, State Highway Department of Florida. This estimate includes engineering overhead costs and incidentals. A total of $50,000 was contributed by the two adjacent counties, Escambia and Santa Rosa. The balance was met by the State and Federal Governments. J. L. Cresap is State Highway Engineer of Florida, R. L. Bannerman, Division Engineer, and S. G. French, Project Engineer in local charge of the work. H. J. Morrison and Charles D. Snead were in charge for the United States Bureau of Public Roads.

A Heavy-Duty Cable-Laying Plow

Large Contractor in Greater New York Develops Tool of Interest to City Officials

CABLE-LAYING PLOW AND FORDSON WHICH LAID 25 MILES OF CABLE IN BRONX RIVER PARKWAY, NEW YORK

A CABLE-LAYING plow which does the work of 75 men in placing heavy cables underground has been designed and perfected by Frank A. Holby and James W. Gibboney, Vice-Presidents of the William F. Kenny Company, one of the larger contracting and engineering organizations in Greater New York.

This plow is used in conjunction with a Fordson tractor equipped with dual rubber-tired wheels and a White hoist. In one operation and with the aid of four men, the plow opens the ground, plows the trench, and lays the cable, and, after the cable is laid, follows through and covers it, rolling the ground after it. The plow will lay cable to a depth of 56 inches.

The particular plow illustrated laid all of the cable on the Bronx River Parkway, a distance of about 25 miles, and averaged approximately 3,500 feet of cable per day. The plow is a home-made affair which has not as yet been provided with a name and which is not for sale.

CABLE-LAYING PLOW IN SERVICE BEING MOVED BY FORDSON EQUIPPED WITH WHITE HOIST

REAR OF PLOW WITH GROUND REMOVED, SHOWING HOW CABLE IS LAID

WHITE TRUCK EQUIPPED WITH BLADE PLOW CLEARING STREET IN FRONT OF HOSPITAL
Note loading of truck to improve traction

Snow Removal in New York City

By Reginald Hawkins

IN the city of New York, plans for fighting snow are made during the preceding summer. Department of Street Cleaning employees and the employees of other city departments who assist in snow work are assigned to snow-removal districts. The scheme of dividing the city into snow-removal districts has been used for years without variation except minor changes in the extent of the separate districts. These workers have been instructed as to their duties by means of a printed booklet. Agreements have been made with the street-railway and bus companies as to their part in the work. The contractors who remove the snow in the boroughs of Brooklyn and the Bronx, and the upper part of Manhattan have agreed to report with their men and trucks within a certain number of hours after a storm.

In an extreme emergency, all city departments cooperate with the Department of Street Cleaning in snow work, but extra help is regularly given by the Police Department, The Bureau of Weights and Measures, the Department of Docks, and the Division of Sewers. The police supervise the contract work, and the Bureau of Weights and Measures determines the capacity of the trucks employed by the contractors. Usually, many extra laborers are hired. In former years an elaborate system of registering emergency laborers and notifying them was used, but now the men needed (except probably those employed by contractors) are hired from the men who apply when a snow falls. Usually, the snow force works both day and night, two twelve-hour shifts, until the streets are cleared.

Snow Fighting and Snow Removal

The work proper proceeds along two lines—snow fighting and snow removal. Undoubtedly, the principle of the first originated with the railroads, but it was not introduced into snow work on streets—not in New York, at least—until 1914, and motor equipment for snow fighting was not used extensively until 1921. Snow fighting is directed toward keeping traffic lanes clear as the snow falls. Snow removal is not begun until a storm is over. The snow fighting force pile the falling snow in the middle or on the sides of the streets or push it into sewers.

The use of sewers for snow disposal was begun in 1914 and extensively applied in 1915. Before these dates, the snow was removed by piling it into trucks and wagons and hauling

it to dumps on the river-fronts. The use of sewers makes it possible for much of the snow to be pushed into manholes without loading into trucks, and shortens the hauls in other sections where manholes are used as dumps instead of the river-front. The importance of the innovation is borne out by the facts: that in 1916 the snow from 41.5 per cent of the area cleaned was sewered; that in this year the daily rate of snow removal was increased to five times the previous maximum. In the first years of this work, snow fighting was done mostly by hand labor, but since the acquisition of snow-fighting machinery in 1920-21 it has been done largely by motor equipment. Before 1920 as many as 14,000 emergency laborers were employed in snow fighting during heavy storms.

The Department of Street Cleaning does all of the snow fighting in all the boroughs of the city, and also the work of snow removal in the lower part of Manhattan. Snow removal in the other districts is done by contractors, who load and haul the snow to designated dumps after the city has piled it. These contractors are paid by the cubic yard of snow removed. Two methods of computing the amount of work done by them have been used. The area basis—that is, multiplying the area cleaned by the contractor by the depth of the fall, making allowance for shrinkage, though it involves much less supervision—has now been dropped, and the method of multiplying the capacity of the trucks by the number of loads has been substituted. The prices per cubic yard which have been paid the contractors over a period of years are shown in a table accompanying this article.

Many uncertain factors aggravate the snow problem. The average snowfall for a winter in New York City is slightly over 32 inches, but 59.2 inches fell in 1904-1905; 45.6 inches fell in 1919-1920, and 52.4 inches fell in 1922-1923. On the other extreme, only 3.3 inches fell in 1918-1919, and the contractors who had been signed up for snow work were not called upon. The duration of a snowfall and the weather accompanying it are both large factors in the amount of work necessary to remove it. Obviously, if a fall is distributed over a week with intervals between storms, it is easier to handle than if it comes in one storm. And warm weather has the double effect of reducing the bulk of the snow and making it easier to work with. The weather also greatly affects the labor problem. In clement weather, if there is not an actual scarcity of labor, the good wages paid in snow work attract men. But wages will not draw a certain class of laborer away from the mission or free lodging-house to work in the snow in severe weather.

The Famous Storm of February, 1920

What may happen when all adverse factors are combined is illustrated by the storm of February, 1920. This storm of blizzard proportions brought in 72 hours of continuous precipitation 17.5 inches of snow and additional rain and sleet. The fallen snow was frozen into a solid mass. The severity of the weather made it impossible for the Department of Street Cleaning, the snow contractors, or the street railway companies to start work on schedule. Emergency laborers were scarce, and a large proportion of the number who were hired went on strike; street cars were stalled in some Manhattan streets for several weeks; the distribution of food was affected to an extent that required emergency measures; business suffered a loss estimated at $60,000,000. The immediate situation was met eventually by cooperation between all business firms that had men and trucks to spare, and all city departments. As a direct consequence of this tie-up, a committee was appointed to study the snow problem and make recommendations as to how the city should equip itself to meet similar conditions in future. The committee recommended the purchase of motor equipment as follows:

212 five-ton trucks; 100 two-ton trucks; 50 five-ton tractors; 100 two-ton tractors; 1 snow loader; 300 push plows; 150 drag plows; 1 five-ton rack body truck; 4 ¾-ton delivery trucks; 3 five-ton wrecking cars with cranes.

The city authorized the expenditure of $2,757,000 for this equipment and an additional $1,370,000 for buildings in which to house it. Since this purchase, the city's snow-fighting machinery has been added to, over 1,000 pieces now being used.

Snow-Fighting Speeded by Motor Equipment

Unfortunately, there are few data on the results accomplished by the new machinery. The second heaviest total snowfall in fifty years (52.4 inches) was handled by it in 1922-1923 with no traffic tie-up. But this snow fall comprised more than twenty-four storms, and other adverse circumstances that attended the storm of February, 1920, did not recur. That snow fighting is now faster and more effective there is apparently no doubt. But we can produce no data from reports as proof. Since the purchase of the machinery, snow fighting has not been so dependent on emergency labor,

it is claimed. When snow fighting was done largely by hand, as many as 14,000 extra laborers were employed. However, as many or more men are now employed. Newspaper reports give the total number of men employed in snow fighting during this winter (1925-26) as from 17,000 to 24,000.

Year	Snowfall, Inches	Street Area Cleaned	Cubic Yards Removed	Contract Price	Total Cost in Dollars
1901–1902....	....	.....	843,964.00	.3675	740,994.42
1904–1905....	59.2	.....	.....	.2043	1,046,250.00
1910–1911....	24.7	17,570,655	2,629,233.91	.....	1,475,985.78
1918–1919....	3.3	*No snow removal*			
1919–1920....	45.6	.....	11,217,403.8	.506	5,506,971.20
1920–1921....	17.7	.....	.....	.533	1,717,092.13
1921–1922....	27.2	33,500,000	4,525,955.1	.434	2,800,107.34
1922–1923....	52.4	36,000,000	8,645,678.00	.426	4,999,177.00
1923–1924....	25.4	.....	.....	.45	*1,621,784.73
1924–1925....	27.9	.....	.....	.435	**6,000,000.00
1925–1926....	....	.....	.....	.43	*5,400,000.00

* Taken from quarterly reports; possibly not accurate.
** Appropriated; no figures available on amount used.

The cost of snow removal has not been affected, it seems, by the snow machinery. In the following table, the total cost includes all expense connected with the work, including departmental expense as well as that paid out to contractors. The contract price is the average for the year in all the snow-removal districts. There are variations of from 2 to 10 cents in the prices for different districts. Figures on the street area cleaned include that cleaned by street-railway and bus companies, the cost of which is not included in the total. The number of cubic yards removed includes that removed by the Department forces. When figures on the street area cleaned were not given in the annual reports of the Department of Street Cleaning, these could not be obtained, because all of the streets in the snow-removal districts are not cleaned. Likewise, figures on the cubic yards removed could not be obtained when not given in the reports.

WHITE TRUCK OWNED BY DEPARTMENT OF STREET CLEANING, NEW YORK CITY, DUMPING LOAD OF SNOW INTO SEWER

The financial side of snow removal is often under suspicion. The conditions attending the work—a hasty assembled organization, piece work, generous appropriations of money—make it possible for suspicion to arise. At the time of this writing, alleged fraud is being investigated. Fraud was charged in 1925; padding of the snow payroll in Queens County was charged in 1923; and suspected collusion among bidders in 1920 led to throwing out the bids. Almost any year, allusions to irregular practices in the methods of snow removal may be noted in the newspapers.

Collection and Disposal of Garbage in Bridgeport, Conn.

By C. P. Shattuck

ACCORDING to the municipal statistics of the city of Bridgeport, Conn., for the fiscal year ending March 31, 1925, there were 15,142 tons of garbage collected at an expense of $52,301.72. The average cost of collection per ton was $3.32. The disposal of garbage cost $85,185.92, exclusive of $18,814.18 for four digestors at the reduction plant.

The receipts from garbage disposal were as follows:

From tankage	$4,684.90	
From grease	53,471.86	
From slaughter-house	13,635.97	
		$71,792.73
*104-½ tons manure	$313.50	
*28 tons tankage	154.00	
		467.50
		$72,260.23

*Sold to city departments.

The annual report of the Board of Contract and Supply indicates that at the conclusion of the fiscal year of 1926 there will be a greater gross to the credit of the reduction plant. The report states:

"Receipts from the municipal reduction plant are expected to show an increase this year as the result of a contract, executed early in 1925, for the entire garbage grease output for this year. Fuel costs have been somewhat reduced through the installation of blowers, permitting the use of buckwheat coal. The cost of buckwheat is about half that of anthracite, and further contemplated installation of blowers is expected to bring fuel costs still lower."

Bridgeport is a manufacturing city with a population of about 160,000. Like many cities producing munitions and war supplies, it suffered a reaction at the termination of the war. This, plus the fact that skilled labor has been attracted elsewhere by higher wages accounts for the decrease in population. This condition affects the garbage tonnage. There are approximately 200 miles of streets covered by the garbage collection department.

Collection Equipment

Horses are employed for collecting the garbage and have been utilized for 20-odd years. Two motor trucks are used, but these may be termed auxiliaries because of the manner in which they are employed. The garbage vehicles are Lee side-dump trailers and about 40-odd comprise the fleet. This number is quite in excess of that in service daily, but spares, those being repaired and painted, and the system of pick-up and delivery, require this number.

The collection system is not new, being of the spot type. The teams of horses leave the stable, quite near the center of the city, shortly after five in the morning, each drawing an empty trailer which has either been left at the yard the preceding night by the motor truck or brought in empty by the horses. Each unit proceeds to the start of its route.

Ten two-horse teams and twenty trailers are required, with the usual spares, to care for the horse-drawn routes. Each team has three routes and all are covered twice each week. The city is zoned, there being three sections, designated as the West End, the North and South End, and the East Side. These are covered, in order, on Mondays, Tuesdays, and Wednesdays. They are serviced again on Thursday, Friday, and Saturday, in the same order, so that West End, for example, is covered Mondays and Thursdays.

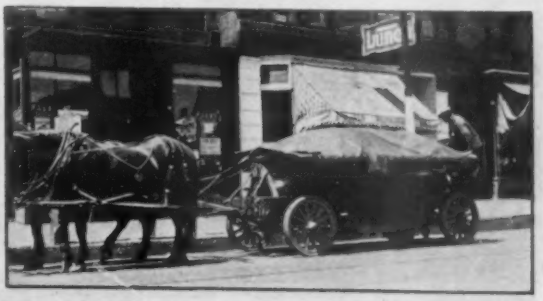
Each team has a driver and a helper. Owing to an increase in wages recently, the driver is now paid 55 cents an hour and the helper 50 cents. The compensation is on the 9-hour-a-day basis. The men are through by one in the afternoon on average days, but they sometimes work later.

On reaching the start of the routes the usual collection is made. Outside of the business districts the ordinances require the garbage containers to be left in the yard or on the porch, for the collectors are not allowed to enter the houses. The driver covers one side of the street and the helper the other. The trailer is first loaded at one end and a heavy canvas cover drawn over the load, and the cover is moved along as the load is completed, so that odor and flies will be avoided as much as possible.

When the trailer is loaded, it is driven to a spot location, instead of being left "as is" when completed. It is taken to a dead-end street with vacant land, or a quarry where there will be no cause for complaint by residents. An

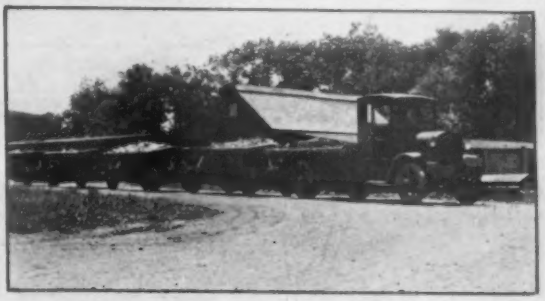
Garbage is loaded beginning at rear of trailer and is covered in warm weather

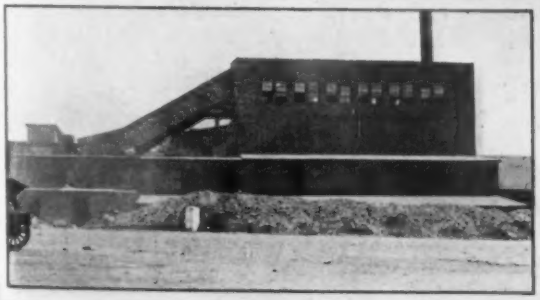
Two-horse team which collects from business sections each week-day. Note complete covering of load



3½-Ton G M C truck which covers regular route and also picks up dead animals

5-Ton G M C truck with train of four trailers entering reduction plant after weighing





Municipal garbage reduction plant which has fair income from sale of tankage and grease

GARBAGE COLLECTION IN BRIDGEPORT, CONN.

CITY OF BRIDGEPORT
GARBAGE DISPOSAL PLANT
GARBAGE DELIVERIES FOR MON-14 JUNE 1926

Truck No.	Trailer No.	Time In	Time Out	Gross 32600	Tare	Net	TOTAL
6869	B-3	915	"	7700	4500	3200	
"	B-4	"	"	7800	4500	3300	
"	B-21	"	"	7800	4300	3500	
"	B-29	"	945	9300	4350	4950	14950
6869	B-15	1010	"	6500	4300	2200	
"	B-11	"	"	7900	4300	3600	
"	B-19	"	"	7700	4300	3400	
"	B-10	"	1030	8400	4350	4050	13250
6869	B-14	1140	"	7500	4300	3200	
"	B-2	"	"	9900	4350	5550	
"	A-26	"	"	6800	4300	2500	
"	A-19	"	"	7800	4350	3450	
"	B-28	"	1200	7300	4250	3050	17750
6869	B-11	130	"	7000	4300	2700	
"	B-8	"	"	8800	4300	4500	
"	B-7	"	"	6700	4300	2400	
"	A-1	"	150	6300	4350	1950	11550
6869	B-15	225	"	8200	4300	3900	
"	B-23	"	"	8400	4400	4000	
"	B-14	"	"	8800	4300	4500	
"	B-10	"	245	8400	4350	4050	16450
6869	A-1	310	"	7300	4500	2800	
"	B-9	"	330	7500	4300	3200	6000
	29			179 800	99850	79950	
							79,950
6 trips							
EMERGENCY	I	805	835	9300	5250	4050	
	I	1100	1130	8250	5250	3000	7050
				175 50	10500	7050	
PRIV. DEL.	I			6450	5350	1100	1100
OFFALS	I	"	"	7950	3450	4500	4500
CONDEMNED MEAT							1800
RUBBISH	I	LOADS		6300	4600	1700	

Total Net Garbage Received 94400

GEO. BEARISH
Weigher

REPORT FORM USED IN BRIDGEPORT, CONN., SHOWING DELIVERIES OF GARBAGE AT REDUCTION PLANT

empty trailer is available at the spot places. This operation is repeated until the route is covered, when the horses return with an empty trailer to the stables.

The spot and pick-up truck is a 5-ton GMC with a platform body carrying weight to insure traction. The trailers are attached in strings of from three to five. Although there is a state law prohibiting more than one trailer, the city of Bridgeport has a permit to use several. The truck with its string in tow travels to the municipal reduction plant, on the outskirts of the city. No mileage is given of the distances, as these vary according to the pick-up places.

On reaching the plant, the trailers with their loads are weighed on a platform scale and the gross, tare, and net recorded by the weigher. A daily record is kept of all products going to the reduction plant, including garbage, condemned meat, dead horses, cats, dogs, and even hens and chickens. The products are listed separately on the sheet. Carbon copies are maintained and distributed to the various heads of the Department and to the Auditor's office at the City Hall.

After the weight and the time in and out are recorded, the truck hauls its string to the entrance of the pit building. The truck hitch is disconnected, and the truck proceeds though the building and out and around to the rear trailer of the string and pushes until two trailers are beside the pit. A pit attendant guides the trailers and with an assistant quickly dumps the two loads. The truck then moves the last two into position, and while these are being dumped the truck moves to the head of the string, hitches on, and is ready to leave, taking the string back to a spot. This operation of pick-ups and deliveries is repeated throughout the day. At the end of the day the truck makes up its string for the next day's spotting.

A two-horse team is used exclusively in the business section or where the restaurants and food stores are located. This team works every work-day and is serviced by the 5-ton GMC which spots the trailers at the stable. The other unit is a 3½-ton GMC, termed the emergency truck, although the name appears to be a misnomer in that its record showed that in the week preceding the visit of the writer it had hauled about 13 per cent of the total. This truck is used on routes with long hauls and where the houses are more or less scattered. It also covers sections where there are unpaved roads and where the loads would be heavy for the horses to pull. The term "emergency" evidently arises from the use of the truck to remove dead horses, dogs, cats, etc.,

and to collect garbage where a complaint is made and a hurry call is essential. In this type of work the speed of the truck is a distinct advantage.

Superintendent Curley states that few complaints are received. Once in a great while a family will return after quite an absence and telephone that the garbage has not been removed; or a new dwelling may need service. As the majority of the men have been in the department nearly twenty years, very little trouble is experienced.

The peak tonnage of course comes in the summer. This averaged about 60 tons during the hot weather in 1925. The table appended herewith is for the week of June 14-19, inclusive, when 508,600 pounds of garbage was collected and deposited at the pit. It will be noted that the peak loads were on Monday, Tuesday, and Wednesday, and that Tuesday's was 95,000 pounds. Of the 508,600 pounds of garbage collected, the horses are credited with hauling 75,800 pounds The trailer loads, collected by horses, amounted to 366,900 pounds. The foreign matter in garbage and rubbish is hauled from the reduction plant to the dump by a two-horse team which also hauls manure. By a system of inspection, the foreign matter was cut in 1925 from 1,138 tons to 721. A greater reduction is anticipated through the education of the householders.

An appropriation has been made for the improvement of the reduction plant. The municipal slaughter-house is on the same grounds, which accounts for the gross tonnage shown in the sample form of weight record.

The city of Bridgeport believes its system of garbage collection and disposal affords excellent service and that the costs are low. Horses are favored and will undoubtedly continue in use, as they are trained in their work and have proved efficient. The equipment is maintained in first-class condition. No detailed costs or mileage of the motor trucks were available, for a cost system in the municipal garage was not adopted until the first of April this year. At the conclusion of the fiscal year ending March 31, 1927, figures will be available for a more accurate comparison of the two methods employed.

Tractors are not favored by the department for hauling the trailers. A test was made of a popular make, and the tractors failed, as the loads plus grades were too heavy.

COLLECTIONS, WEEK OF JUNE 14-19, 1926

Garbage Removal	Horse Loads	Horse Weight, Lbs.	Trailer Loads	Trailer Weight, Lbs.	Truck Loads	Truck Weight, Lbs.	Total Wt., Lbs.
Monday	..	.....	23	79,950	4	11,550	91,500
Tuesday	3	11,900	21	70,850	3	12,250	95,000
Wednesday	8	31,600	12	48,100	3	10,500	90,200
Thursday	..	.....	20	71,950	3	12,450	84,400
Friday	3	10,300	20	55,700	5	15,700	81,700
Saturday	8	22,000	13	40,350	2	3,450	65,800
Totals	22	75,800	109	366,900	20	65,900	508,600
Rubbish	..	.....	...	.....	4	.....	166,000
Manure	..	.....	...	.....	4	.....	88,000
							762,600

Total collection for week, 381 tons. Average collection per week, 1925, 291 tons.

ACKNOWLEDGMENT.—The writer wishes to express the appreciation of the courtesies and assistance given him in the preparation of this article by John T. Curley, Superintendent Garbage Collection Department, and other officials.

The Water-Softening Plant at Hinsdale, Ill.

THE new water-softening plant at Hinsdale, Du Page County, Ill., has a normal capacity for softening 2,300,000 gallons of water in 24 hours with a maximum capacity of 3,000,000 gallons. The plant and Dorr clarifier were placed in operation in September, 1925. The softening process as carried out consists of the following treatment with lime and soda ash—agitation, removal of sludge by the Dorr clarifier, sedimentation, application of carbon dioxide, and filtration, carried on in the order given.

The raw water, after having been treated with the chemicals for softening, enters a trough from the mixing tank and passes to a Dorr thickener or clarifier. The clarifier is 28 feet x 28 feet x 16 feet in depth, giving a capacity of 100,000 gallons. The concrete basin and clarifier mechanism adjoins the sedimentation basin. It can be used or by-passed as desired. Continuous removal of sludge is provided through a 6-inch pipe drain in the bottom which is connected to the suction side of a lift pump. This pump is located on the operating floor level of the mixing tanks.

Approximately 75 per cent of the precipitated sludge is removed and returned to the mixing tanks with the new application of chemicals. Because of the storage capacity of the plant and the larger treating capacity to take care of future demands, the plant is operated at present from eight to ten hours per day. At the close of each day's operation the sludge is blown down by draining to the sewer for a period of about two minutes. It has been found best not to waste the sludge during operation. The retention period in terms of normal plant capacity is about one hour.

We are indebted to Frank D. Danielson, Village Manager, Hinsdale, Ill., for this information regarding the Hinsdale water-softening plant.

Raised Sidewalks and Traffic Separation Urged for Chicago

THE constantly recurring agitation for a subway system in Chicago has been met with an alternative proposal, in a recently published pamphlet on "The Chicago Business Center and the Subway Question," by Edward H. Bennett, consultant of the Chicago Plan Commission.

Chicago's problem is primarily one of the central district, or "Loop," and in Mr. Bennett's opinion added congestion rather than traffic relief would result from carrying out the subway plan. His plea is for raised sidewalks and traffic grade separation, whereby all streets in the Loop would be developed into channels of easily flowing wheel and pedestrian movement —a veritable metropolitan traffic terminal of the through type. To quote in part:

"This is in reality a humanitarian question before an economic one. Conditions of today cheapen life, cheapen human relations and generally breed a carelessness and lack of consideration, and lack of dignity that is vastly injurious to the citizenry and does not augur well for the future of our civilization.

"We have in this problem four factors of circulation to deal with:

1. Rapid transit
2. Surface traction
3. Bus lines and general motor traffic
4. Pedestrians

"The Loop will be, even with reasonable expansion, the terminal, so to speak, of these elements of traffic. Already this area is too heavily burdened, and if not saturated now will be at no distant date. This area is at present better provided with rapid-transit through terminal facilities than with facilities for the other three factors. Will the introduction of a few subways as promised provide all-round better transportation conditions to and from the Loop and relieve congestion? No! It will add to certain forms of congestion and thus hamper general traffic and transportation facilitiees. The traffic will be hampered because of the interference between pedestrians and vehicles on the streets; the transportation likewise because of this same hindrance of approach

A CHICAGO STREET, SHOWING THE PRESENT CONFLICT BETWEEN MOVEMENT OF PEDESTRIANS AND WHEEL TRAFFIC

to the proposed means of transit. Certain streets now crowded with pedestrians would be glutted, and at certain times of the day the stations would be well-nigh unapproachable.

"Pedestrian conditions in the Loop are already intolerable; it may be said to be the one situation most demanding a solution. Since these two evils —traffic stagnation and pedestrian congestion and discomfort—are then to a large extent dependent upon one another, cannot a solution be found mutually beneficial? It can; and one which will remove other evils along with them. (While stated as a conviction, the writer realizes that this is a complicated question and one requiring concentrated surveys and studies by an adequate staff of technicians for its complete demonstration.)

Interruption at Intersections Chief Cause of Traffic Delays

"The primary cause of traffic delay is interruption at street intersections. This difficulty, along with that of right or left turns, can be removed at the major street intersections alone by the separation of levels at those intersections; correspondingly, it can be done only on condition of removing the chief window-display values from the present street levels, together with the pedestrians, to a level above the present one.

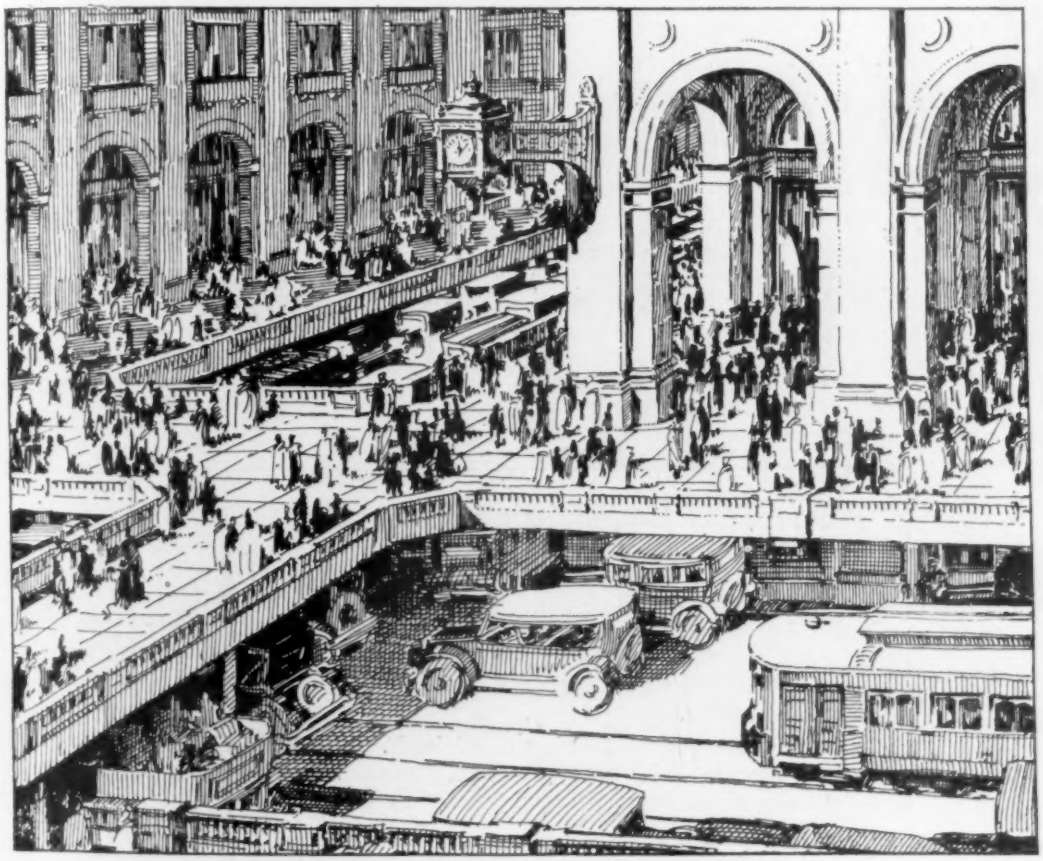
"In other words, at certain and even at many intersections, whilst maintaining north-and-south streets at present level, let us say, certain others east-and-west would be ramped or dipped under them, since this would carry street cars as well as all other traffic down under. For the purposes of looping, the cars might remain down on the north-and-south looping streets.

"The question of ramping down and up of the roadways of streets must be worked out with regard to subsurface utilities, present and future; also with regard to possible subways and their cross-overs. Since the ramps would not be required on all streets and because rapid-transit subways could not be required on more than a few of these streets in the central district, it appears as though an adjustment of these seemingly conflicting factors may be worked out.

"The pedestrian then would be on sidewalks raised a story height approximately above the present street level.

"The sidewalks would be extended at the new level, bridging over the roadways on well-designed structures at a height to give clearance for traffic at the street intersections. They would pass conveniently under the level of the elevated railway structures, requiring only a moderate headroom of seven or eight feet.

"Values would be re-created at this upper level, and damages which otherwise would result from the ramping-down of vehicles in certain streets eliminated. Furthermore, other values could be



AN ILLUSTRATION OF THE PLAN SUGGESTED FOR TRAFFIC RELIEF IN CHICAGO, SHOWING THE USE OF TWO LEVELS

created by the extension of the sidewalks in some miles of alleys now utilized only by trucks. The zoning ordinance provides for the setback of buildings as they rise on alleys; this will provide light and air conditions approaching those of the streets.

"The writer foresees, should this plan be carried out of raising the walks, that on streets practically wholly given up to retail and department stores, additional sidewalk space would be ultimately provided within the building line in arcades.

"Below, at present street level, would be sidewalks reduced to a minimum and suitable for alighting from vehicles, or arcaded sidewalks within the building line. Thus, practically all the street may be given up to traffic, and space provided to make possible the ramping-down of through traffic, the right-hand turn (the left-hand turn would take place from below), the comfortable and easy vehicular approach to business houses by means of all the common carriers—street cars and busses, and for vehicular parking throughout the district, within measure.

"The function of the modern motor (and that includes the rapidly increasing busses) is to convey its passengers to the exact destination, and it is a strange anomaly created by existing conditions that it must be treated as a rail vehicle.

"Certainly, garage space at ground level or in basements might and perhaps should be provided where quantities of vehicles seek parking space; with the upper-level sidewalks, such a plan may seem more reasonable to owners than at present.

Objections to Plan

"There are many difficulties involved in the plan outlined above, all requiring careful threshing-out. Perhaps, even, there are objections which when fully developed will cause some of the ideas to be rejected; that remains to be seen after a concentrated survey and analysis. Some of the difficulties are:

(1) The matter of existing leases on the ground floor where the upper floor is under separate lease and not available, or, again, where an established business on one floor cannot find an equally good location under the new conditions.

(2) The question of light in the story under the sidewalk or at the present street level.

(3) That of remodeling of buildings and the apparent injury to costly architectural effects.

"The answer to these objections from a business point of view must be that after adjustment, better business conditions would prevail; that the plan is subject to modification fitting various streets or localities and perhaps not necessarily applicable everywhere in the center; and that a plan of gradual operation could be worked out undoubtedly allowing time for adjustment.

"The matters of light and architecture can be met in most cases fairly easily; in others it will be a matter of cost.

Plan of Raised Sidewalks Is Not a New Idea

"The idea of raised sidewalks here put forward is not a new one; it has been in mind since the early city planning days in Chicago and it has been definitely suggested in itself for Chicago by others not connected with the plan work. In New York a year or so ago a plan was proposed by a group of architects and interestingly elaborated much along the lines proposed above.*

"It may be safely said that, far from the unsightly effects some may fear, architecturally speaking the most interesting results may be expected from the plan, provided it is studied in detail with full regard for architectural principles and design.

"The present program being urged for widening to double their width of all the principal highways around the city and extending into the city, adds strength to the demand for drastic remedies in this central street terminal. Motorization is country-wide and the intensive traffic condition within our cities is due not only to the development of motor traffic within the cities themselves but to this condition of universal motorization."

* EDITORIAL NOTE.—See "Different Levels for Foot, Wheel and Rail," by Harvey Wiley Corbett, in THE AMERICAN CITY for July, 1924, pages 2-6.

Is Your City Drifting Into a Traffic Maelstrom?

Whether or not Mr. Bennett's proposal, as here outlined, is the best cure for congestion in Chicago's "Loop," smaller cities will be shortsighted indeed if they fail to learn helpful lessons from the traffic problems of New York and Chicago and Los Angeles.

To every forward-looking municipal executive and civic organization in cities having metropolitan aspirations, pages 314 to 318 of this issue are respectfully commended.

Electrification of the Lafayette, Ind., Water-Supply

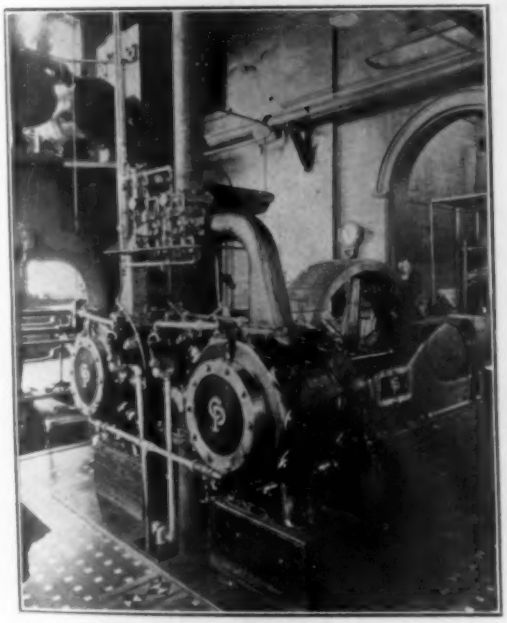
By John W. Moore
Consulting Engineer, Indianapolis, Ind.

THE principal business section of Lafayette is located on the low table-land adjacent to the Wabash River. The city has gradually grown until a large part of the residential district is located on the high table-land known as the Columbian Park section.

The water-works serving Lafayette has gone through several stages of development. Many years ago two steam-driven pumps, each of 6,000,000 gallons daily displacement, were installed in what is known as the Canal Street pumping-station, pumping by suction from wells in the channel of the Wabash River. The water was delivered into the mains under a pressure of from 90 to 110 pounds per square inch, serving the customers on the lower level of Lafayette, the surplus water from these pumps supplying a reservoir of 4½ million gallons capacity at Columbian Park, thereby furnishing adequate pressure at all times to the principal section on the lower levels of the city.

The upper level, or the Columbian Park section of Lafayette, was served by a steam-operated pump of 3,000,000 gallons displacement in the Columbian Park pumping-station adjacent to the reservoir, and pumping from the reservoir into the distribution system serving the Columbian Park district. There being no elevated storage tank in the Columbian Park system, it was necessary that this pump be operated continuously.

BUILDINGS IN WHICH FIVE DEEP-WELL PUMPS ARE HOUSED AT THE CANAL STREET PUMPING-STATION, LAFAYETTE, IND.



CHICAGO PNEUMATIC MOTOR-DRIVEN AIR-COMPRESSOR AT CANAL STREET STATION

Changes in Pumping Methods

In 1912 the writer recommended that the city sink wells near the Canal Street pumping-station and install an air-lift pumping system, the air-compressor of this system being steam-driven. These wells and the air-lift pumping system were installed, the water being delivered from the wells into a receiving basin constructed at that time some 40 feet in diameter and located on the same level and near to the Canal Street pumping-station. A short time after the steam-driven air-lift system was installed, three of the wells were equipped with motor-driven deep-well pumps of the impeller type, for the purpose of reducing, if possible, the cost of pumping water from the wells and delivering it into the receiving basin.

The steam-driven pumps at the Canal Street pumping-station then pumped direct from the receiving basin and thereby were relieved of

the high suction lift which previously had given much trouble when these pumps were pumping from the wells located in the Wabash River. The old steam-driven pumps, both at the Columbian Park station and at the Canal Street station, served the city for many years, and, so far as is known, were models of equipment of that type. The long service of these pumps, the increased demand for water by the city, and the improvement of modern pumping equipment, all demanded that these steam-driven pumps be discarded and modern equipment installed.

Growth of City Creates Serious Problem

In 1922 the members of the Board of Public Works of Lafayette found themselves confronted with a very serious problem in maintaining a dependable and sufficient water-supply to meet the requirements of the city. During the latter part of 1922 the writer was instructed to make a complete investigation and a report with recommendations on the entire water-supply question. The report and recommendations were approved as submitted, and plans and specifications were prepared and mailed to the nine manufacturers available.

The conditions at Lafayette divide the problem into three distinct divisions: first, the pumping of the water from wells to the existing receiving basin at the Canal Street pumping-station; second, the pumping of the water from the basin at the Canal Street pumping-station into the mains serving the lower level of the city, the surplus supplying the reservoir at Columbian Park; third, the pumping of the water by the Columbian Park station from the reservoir and into the distribution system serving Columbian Park and the upper level of the city.

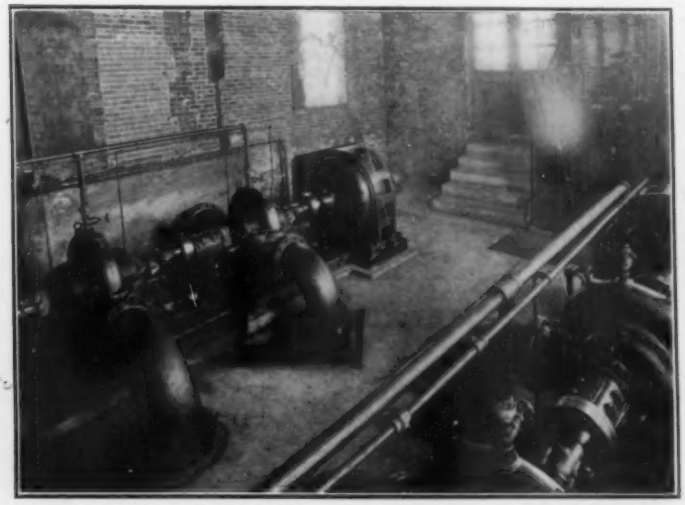
Wells and Well Pumping Equipment

There are fourteen wells, each 12 inches in diameter and approximately 100 feet in depth. These wells penetrate a very satisfactory water-bearing gravel, and each well has a capacity of from 1,000 to 1,300 gallons of water per minute. In five of these wells were installed modern motor-driven deep-well pumps, each pump having a capacity of 1,000 gallons per minute. The three old impeller type pumps previously mentioned were discarded.

As an auxiliary or standby equipment for pumping the water from the wells, a motor-driven air-compressor was installed at the Canal Street pumping-station to operate nine of the wells already equipped for pumping with air. The motor driving this air-compressor is of the slip ring type, receiving the current at 2,200 volts. The use of the steam-driven air-compressor was discontinued.

Motor Equipment for Pumping-Station

At the Canal Street pumping-station were installed two pumping units each having a capacity of 6,000,000 gallons in 24 hours when pumping against 110 pounds pressure. These pumping units are of the two-stage centrifugal type and are driven by synchronous motors. They have separate suction pipe from the receiving basin and separate discharge pipe to the mains. They are equipped with both vacuum and pressure gages and flow meters. The motors receive the electric current at 2,200 volts and are ample to meet any demand that may be required by the pumps which they drive, under any condition of head.



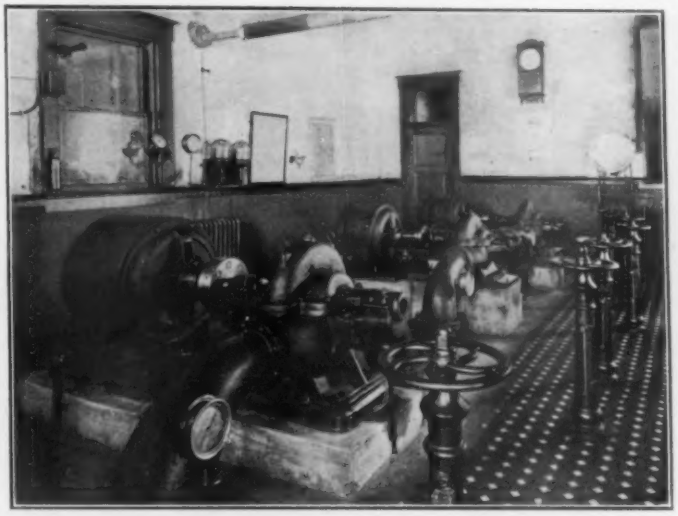
PUMPS AT CANAL STREET STATION, LAFAYETTE, IND., EACH OF WHICH DELIVERS WATER AT 4,200 GALLONS PER MINUTE AGAINST 110 POUNDS PRESSURE

Pumping Equipment for High-Level Service

The wide variation in the water-supply demand at the Columbian Park station was met by installing for domestic services duplicate motor-driven centrifugal pumping units, each unit having a capacity of 1,500,000 gallons in 24 hours. For fire protection there was installed one motor-driven centrifugal pumping unit of 3,000,000 gallons daily capacity.

The two domestic service pumps when in parallel will deliver 3,000,000 gallons of water each 24 hours at 56 pounds

pressure. If occasion should demand, they can quickly be placed in series and will then deliver water at the rate of 1,500,000 gallons each 24 hours at fire pressure, which when taken in connection with the pumping unit for fire protection gives a total capacity at fire pressure at this Columbian Park station of 4,500,000 gallons each 24 hours. A relief valve is set to take care of any excess pressure that may develop by the sudden closing of a fire-hydrant at a time when fire pressure is being carried.



THREE PUMPS AT COLUMBIAN PARK STATION, TWO OF WHICH HAVE CAPACITIES OF 1,000 GALLONS PER MINUTE EACH AGAINST 60 POUNDS PRESSURE, AND THE THIRD 2,100 GALLONS PER MINUTE AGAINST 100 POUNDS PRESSURE

Efficiencies of Equipment

Certain efficiencies were required to be guaranteed by the manufacturers installing this equipment, an indemnity bond equal to the full amount of the bid being required to protect the city against the failure of the equipment to meet the guarantees when tested. The over-all efficiency of the deep-well pumping units is 58.5 per cent. The over-all efficiency of each of the two pumping units of 6,000,000 gallons daily capacity, pumping against 270 feet total head, is 75.2 per cent. The efficiency of each motor at 100 per cent power factor is 94.1 per cent. The speed of the pump and motor is 1,200 r. p. m.

If for any reason the pressure against which these two units operate should be reduced, the capacity of each unit will automatically increase, as the pressure decreases, to a maximum of 9,000,000 gallons daily against 43 pounds pressure.

The over-all efficiency on the air-lift pumping system could not justly be required of the bidder furnishing the motor and air-compressor; therefore, the efficiency of the motor and the volumetric efficiency of the air-compressor under the stated conditions only were required.

The guarantees on the 1,500,000-gallon daily capacity pumping units for domestic service at the Columbian Park station were as follows:

Speed of pump and motor, 1,760 r. p. m.

Pump efficiency and b. h. p. at full capacity, 75 per cent and 45.7 b. h. p.

Pump efficiency and b. h. p. at 50 per cent capacity, 60 per cent and 32.5 b. h. p.

If for any reason the pressure against which these two units operate should be reduced, the capacity of each unit would automatically increase, as the pressure decreased, to a maximum of 2,000,000 gallons daily when pumping against 27 pounds pressure.

The guarantees required on the fire-pump of 3,000,000 gallons daily capacity follow:

Speed of pump and motor, 1,750 r. p. m.

The efficiency and b. h. p. at full capacity is 74 per cent and 185 b. h. p.

The pump efficiency and b. h. p. at 50 per cent capacity is 57 per cent and 140.7 b. h. p.

Tests of Old and New Equipment

Actual tests were run on the operation of the motor-driven compressor and air-lift pumping system and on the old Hill-Tripp deep-well impeller-type pumps and on the new modern deep-well pumps. These tests were all made on the same basis and reduced to the cost of pumping water per thousand gallons.

The cost of pumping water by the modern deep-well pumps per thousand gallons equals $0.0062.

The cost of pumping water by the old Hill-Tripp impeller type of pumps per thousand gallons equals $0.0128 (these three pumps were discarded).

The cost of pumping water by the motor-driven air-lift pumping system per thousand gallons equals $.0104.

The pumping level of the water in the wells at Lafayette is controlled largely by the stage of the Wabash River, and the wide variation in the pumping level of the water affects the cost of operation of the air-lift pumping system to such an extent that it is not advisable to use the air-lift except at such times as repairs are

being made to the deep-well pumps.

In 1922 the cost of operating by steam-driven equipment at both stations equaled $72,832.03.

In 1925 the operation of the plant had been changed from steam to electric drive, except in the case of the steam-driven air-compressor. The pumpage in 1925 exceeded that of 1922 by 31,000,000 gallons. The cost of operation in 1925 under the above conditions was $63,945.85, a saving of $8,888.

Savings Effected

The complete change from steam- to motor-driven equipment has now been made and the saving in the cost of operation over that of the old steam plant is estimated to be a minimum of $12,000 each year.

The modern deep-well pumps when delivering the full supply of water from the wells into the receiving basin show a saving in cost of about $4,000 each year over the cost of the same amount of water when pumped by means of the air-lift pumping system, hence the reason for discontinuing the air-lift in favor of the modern deep-well pumps under the existing conditions at Lafayette.

The reason for installing a motor-driven air-compressor to operate the existing air-lift pumping system is that the dependability of this system of pumping is much greater than that of any other known system of deep-well pumping, on account of there being no moving parts in the wells pumped, nor are there any electric wires required to each well so pumped. The system, then, is not subject to the many hazards due to the rapidly revolving parts of the deep-well pumps, nor is it affected by accidents to the transformers incident to the motors of the deep-well pumps.

This motor-driven air-lift pumping system should not be operated except as emergency demands, as the added expense under the conditions does not warrant its use except as standby equipment.

The greatest amount of water pumped in any one day at the Canal Street pumping-station is approximately 4,000,000 gallons, or about two-thirds of the minimum capacity of one of the large centrifugal pumping units at that station.

The capacity of the different pumping units as now installed is as follows:

The total capacity of the well pumps and wells is 10,800,000 gallons each 24 hours.

The total capacity of the two pumping units at the Canal Street pumping-station at high pressure is 12,000,000 gallons each 24 hours.

The maximum capacity of these two units against 43 pounds pressure is over 18,000,000 gallons each 24 hours.

The total capacity of the three pumps at the Columbian Park station for domestic service is 6,000,000 gallons each 24 hours.

The total capacity at fire pressure of these three pumps at the Columbian Park station is 4,500,000 gallons each 24 hours.

The location of Lafayette in reference to the super-power plants is such that the Indiana Board of Fire Underwriters did not require the installation of auxiliary power.

In addition to the large electric power-plant located within a few blocks of the Canal Street station, which supplies the water-works pumps through two power lines located on separate streets, power is available from the super-power plants located at South Bend, Dresser, Norway, and Oakdale. These plants are all interconnected and can give service within a very few minutes after the demand is made.

The maximum supply for Lafayette at this time is governed by the capacity of the wells and the deep-well pumping system.

If the population of Lafayette is taken to be 24,000, then the wells and pumping units as now installed can deliver each 24 hours 450 gallons of water for each inhabitant.

ACKNOWLEDGMENT.—From a paper read before the Indiana Section, American Water Works Association, at its nineteenth annual meeting.

The Spacing of Fire-Hydrants

IMPROPER hydrant spacing may create a fire hazard in any community in spite of ample pressure and volume of water in the street mains, according to Nicholas S. Hill, Jr., consulting engineer, New York, and President of the Hackensack Water Company. In a recent report on the annual survey of the fire protection facilities in North Hudson and Bergen Counties, N. J., it was pointed out that in 43 communities served by the water company the average space between hydrants is more than 500 feet, this being the distance prescribed by the Board of Fire Underwriters.

The survey by the company embraced 47 communities and showed that 17 towns have a greater average distance between hydrants than in 1913. Only three towns have cut the average spacing to 500 feet or less. Forty-two towns have an average spacing of more than 600 feet, nineteen towns over 800 feet, and eleven over 100 feet. "The generally accepted rule of the Fire Underwriters is that hydrants should not be spaced more than 500 feet apart in built-up communities," said Nicholas S. Hill, Jr., in his communication to the Mayors. "If long lines of hose are necessary to reach a fire, friction losses eat up the pressure,"

Automobile Fatalities Becoming One of Our Deadliest Scourges

AUTOMOBILES were directly responsible for more deaths in Illinois last year than diphtheria, measles, scarlet fever, typhoid fever and whooping-cough combined. These five diseases, the worst of the acute epidemic infections, caused a total of 1,530 fatalities in the state last year, while automobiles caused 1,548.

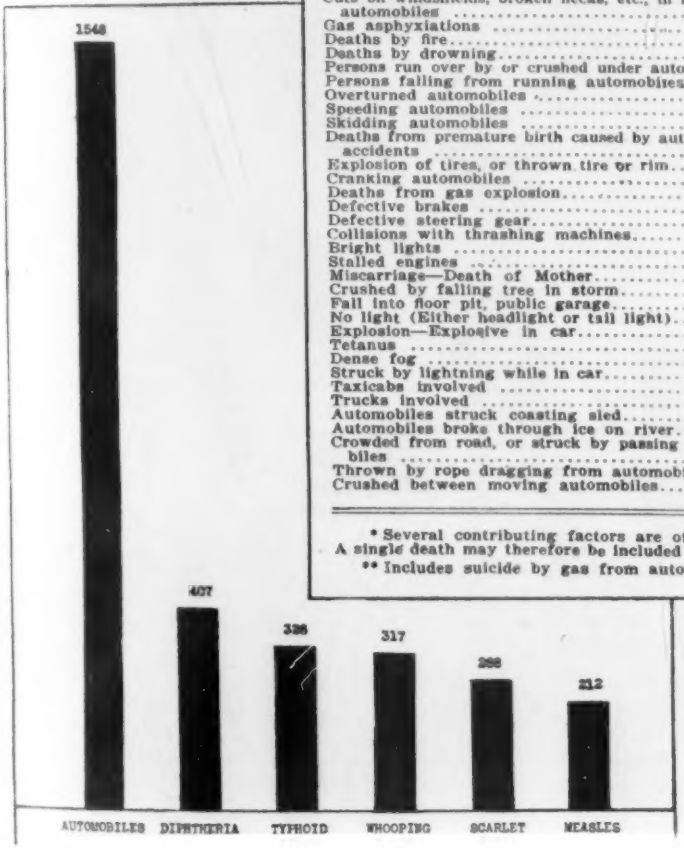
This startling fact is emphasized in graphic form by the Illinois State Department of Health in the chart here reproduced. It is also pointed out that mortality from automobile mishaps in Illinois in 1925 jumped 23 per cent above that for 1924. The actual number of fatalities reported rose from 1,258 to 1,548, an unfavorable difference of 290.

Commenting on the fact that similar figures for the state of New York show an actual decline from 2,316 in 1924 to 2,120 in 1925, a fall of nearly 10 per cent, the July issue of

DEATHS IN ILLINOIS IN WHICH AUTOMOBILES WERE CONCERNED OCCURRING IN THE YEAR 1925; WITH ANALYSIS SHOWING REPORTED CONTRIBUTORY FACTORS INVOLVED

Total Deaths in which Automobiles were concerned.	Chicago City. 682	State excl. of Chicago. 866	State Total. 1548
Analysis of Reported Contributing Factors:	**Chicago City.**	**State excl. of Chicago.**	**State Total.**
Pedestrians struck	523	310	833
Collisions between automobiles	51	76	127
Automobiles struck by trains	4	182	186
Automobiles struck by street or electric cars	21	36	57
Collisions with horse drawn vehicles	2	2	4
Collisions with fixed objects	14	43	57
Collisions with motorcycles	5	6	11
Collisions with bicycles	5	5	10
Crushed between automobiles and fixed objects	7	5	12
Cuts on windshields, broken necks, etc., in running automobiles	0	5	5
Gas asphyxiations	20	**10	30
Deaths by fire	1	10	11
Deaths by drowning	0	8	8
Persons run over by or crushed under automobiles	121	138	259
Persons falling from running automobiles	24	43	67
Overturned automobiles	12	138	150
Speeding automobiles	1	14	15
Skidding automobiles	7	26	33
Deaths from premature birth caused by automobile accidents	0	3	3
Explosion of tires, or thrown tire or rim	1	4	5
Cranking automobiles	1	6	7
Deaths from gas explosion	0	2	2
Defective brakes	0	3	3
Defective steering gear	0	2	2
Collisions with thrashing machines	0	0	0
Bright lights	0	6	6
Stalled engines	0	0	0
Miscarriage—Death of Mother	0	0	0
Crushed by falling tree in storm	0	0	0
Fall into floor pit, public garage	0	0	0
No light (Either headlight or tail light)	0	6	6
Explosion—Explosive in car	0	2	2
Tetanus	0	1	1
Dense fog	0	1	1
Struck by lightning while in car	0	1	1
Taxicabs involved	60	6	66
Trucks involved	122	70	192
Automobiles struck coasting sled	0	1	1
Automobiles broke through ice on river	0	2	2
Crowded from road, or struck by passing automobiles	1	6	7
Thrown by rope dragging from automobiles	1	0	1
Crushed between moving automobiles	1	0	1

* Several contributing factors are often involved in an automobile death. A single death may therefore be included in several items of the above analysis.
** Includes suicide by gas from automobile. (One case).



Deaths from automobiles in Illinois now outnumber those caused by diphtheria, typhoid fever, whooping cough, scarlet fever and measles combined. Figures at top of bars indicate number of deaths in 1925 due to causes specified at bottom

Illinois Health News says:

"The decline in fatal automobile accidents in New York during a year when a general increase was recorded elsewhere is credited largely to the strict enforcement of a strong state law which involves the revocation of driving license. Roads in that commonwealth have been constructed with the view of making the safety factor as great as possible, while the highways are said to be vigorously patrolled and the newspapers generally carry the names of persons whose licenses to drive have been taken away because of careless or deliberate violations of law.

"Illinois is paying a pretty heavy price for the comforts and conveniences of automotive transportation. The 1,548 lives lost last year, an average of nearly 5 per day, constitute only a part of the damage done to human life. Many thousands of persons were injured, some seriously enough to be permanently handicapped."

The same issue of *Illinois Health News*, in the accompanying table, presents a statistical study of the fatal automobile accidents in the state in 1925. These figures, it is explained, will not agree strictly with the official mortality returns, since the accidents involving railroad trains and street cars are not charged against automobiles, but against the heavier vehicle.

The tuberculosis story is more cheerful:

Mortality from Tuberculosis Falls

"Mortality from tuberculosis in Illinois took another substantial drop in 1925, the seventh successive annual decline. The number of deaths from tuberculosis reported in 1925 was 5,529 against 5,637 in 1924, while the rates per 100,000 population for the two years respectively were 82 and 79.3.

"In the face of a general rise in mortality from all causes—an increase from 11.2 to 11.7 per 1,000 population—the falling death-rate from tuberculosis is regarded as a significant justification of the eradication campaign that is costing the public $15,000 per day, or upwards of 5 million dollars annually.

"The increasingly successful anti-tuberculosis campaign in which Illinois is engaged has no parallel in the history of the state. The bulk of its stupendous cost goes to the 31 tuberculosis sanatoria, mostly public in character, which accommodate 3,542 patients and operate at an annual outlay of some 3½ million dollars annually. Another million goes for the tuberculin testing of cattle, while the remainder is accounted for by expenditures from seal sales and a credit of interest on the $10,000,000 invested in sanatoria.

"Formerly a scourge that stood at the top of the list of all causes of death, tuberculosis has given way to half a dozen other maladies, each of which now causes more deaths annually. The tuberculosis mortality rate per 100,000 has dropped nearly 50 per cent since the eradication campaign took on its present momentum."

What a County Public Health Nurse Can Do

Suggestions from Michigan

OF the 83 counties in Michigan, 30 have full-time county nurses doing public health nursing. The majority of them are employed wholly or in part by public funds—that is, by appropriations from the boards of supervisors. In some counties, the Red Cross carries a part of the expense and in a few cases the tuberculosis funds are used for this purpose. Since the present law went into effect, giving the supervisors the right to appropriate funds for nursing service, five additional counties have voted financial support.

In summing up the work of the public health nurse, the July issue of *Michigan Public Health* lists:

1. School inspection, followed up by the home visits in an effort to secure corrections of defects.

2. Help in the establishment of hot lunches in the school and the serving of milk to the undernourished children.

3. Assisting the local health officer in promoting general vaccination against smallpox, diphtheria, and typhoid fever and in the prevention of epidemics of communicable diseases.

4. Visiting tuberculous patients and giving instruction in means of preventing the disease.

5. Prenatal conferences.

6. Assisting in establishing and stabilizing mother and baby health centers, tuberculosis, dental and tonsil clinics.

7. Interesting and assisting the teachers in health education through practical lessons in hygiene, which includes the care of the schoolroom and grounds, simple methods of guarding against infections of various kinds, health plays and games, putting on fly campaigns in the early spring.

8. Promoting the Modern Health Crusade.

9. Teaching classes in home nursing, Little Mothers' Leagues in the schools, and mothers' classes.

10. Health talks in the schools and to the clubs in the county desiring it.

11. Nutrition work where the service of a trained nutrition worker is not available.

12. Social service calls—especially for ex-service men and their families.

13. Visiting nursing or bedside care should be given only in an emergency and not as a regular part of the program, as this consumes too much of the nurse's time, giving service to far too limited a number.

Asphaltic Concrete Construction Methods in a Small City

By Dwight B. Coleman
City Engineer, Cortland, N. Y.

THE city of Cortland this year has been pushing its second season's work in the construction of black base pavement and its fourth year of operation of a municipal asphalt plant. Cortland is the county-seat of Cortland County in central New York and is a city of 13,879 population. It is the center of a fertile farming and dairying section, with several large canneries and milk-shipping stations. The other principal industries are furnaces, a rolling mill making wire and wire screen products, nails, drop forgings, and sheet metal, a motor truck factory, and the numerous smaller industries which go to make up the usual city of this size.

The traffic t and from the metal works is not especially heavy, as it is handled mostly by rail, but the road tests and drive-aways of trucks, together with the traffic incident to the collection of supplies for the canneries and the milk depots, combine to form a considerable total tonnage. The city is also the converging point for several main arteries of travel, including the principal route between Elmira, Ithaca, Binghamton, Scranton, Wilkes-Barre, and central Pennsylvania on the south, and Syracuse, Auburn, and the Thousand Islands and Canadian recreation territory on the north, with heavy summer tourist and year-round truck traffic.

The soil of the locality varies from a heavy clay in the hilly center section of the city to a more open, well-drained, sandy gravel in the surrounding portions. About one-fifth of the city's area and road mileage is on the clay subsoil, and the remaining four-fifths of the better material. There are 45 miles of streets in the city, of which 25 miles carry a surfacing of some kind. This 25 miles is made up of 13 miles of penetration asphalt macadam, 5½ miles of asphaltic concrete, 5 miles of water-bound macadam with asphaltic surface treatment, and 1½ miles of brick. Naturally, most of the earlier pavements were laid on the principal streets and were built of sheet asphalt on a pit-run gravel concrete 6 inches deep and of 1 to 6 proportions. In 1922 several of these streets, totaling about 75,000 square yards, required resurfacing. They consisted of sheet asphalt paving laid in various times from 1899 to 1905, thus being from 17 to 23 years of age. There have been practically no maintenance expenditures required on these pavements, which had simply come to a dignified old age.

PENETRATION MACADAM ON WEST COURT STREET, CORTLAND, N. Y., BUILT IN 1915. PICTURE TAKEN IN 1925

The light spots on the right of the roadway are repairs to the pavement after cuts were made to repair a gas-main

Unable to award single contracts sufficiently large to assure proper prices, the Board of Public Works decided to purchase an 850-yard asphalt paving plant. In 1922 the city resurfaced three streets, consisting of about 30,000 square yards. The work involved the removal of the old sheet asphalt surface, minor repairs to the concrete foundation, and placing a new 1-inch binder course to true up the base and a 2-inch asphaltic concrete surface course. This work was continued in 1923 and 1924 on similar streets, originally built from 1899 to 1905, to the extent of 18,000 yards.

During the period of this resurfacing work, a large part of the new pavements on secondary streets are being laid of penetration asphalt macadam on waterbound macadam bases. The cost of this macadam surface was nearly the same as for the asphaltic concrete surface. Also, the supply of available coarse material for macadam was rather insufficient, while plenty of the finer grades suitable for mixed types were to be had. These factors indicated the advisability of using mixed tops on macadam base for the new construction as well as the resurfacing, so that in 1923 and 1924 about 41,400 square yards of new asphaltic concrete surfaces were laid on new waterbound macadam base.

Black Base Construction

During 1924 the success attending the use of black base foundations in other parts of the country had attracted the attention of the local authorities and, inasmuch as the conditions surrounding its manufacture and use were admirably fitted to our own, we decided to use this type of base 4 inches deep on one street and 5 on the other street, with an inch and a half asphaltic concrete top.

The work was quickly completed by the same force and equipment used on the other streets, and has met with great popular favor of the property owners. Pleasant Street, 896 feet long, was under improvement just ten days from the first excavation to completion. For Church Street, 400 feet long, it required four days to place the black base and two days to place the top, the pavement being completed eight days after commencing excavation work. In addition, these streets were left open to traffic each night of the period. The following table of typical examples for each of the various kinds of work done during the 1924 season gives both a comparison of types and actual costs. It should be borne in mind that these figures cover all cost items, including excavation for foundation, plant operation, etc.:

TYPICAL PAVING IN CORTLAND

Street	Old Type	New Type	Area	Cost per Yd.	Remarks
Church St.....	None	5" black base 1½" asph. conc. top	1669	2.05	12" excavation
Pleasant St....	None	4" black base 1½" asph. conc. top	2180	2.52	All hand excav.
Bartlett Ave...	None	6" mac. base, 1" binder. 1½" top	2577	2.51	Steam shovel excavation
Broadway.....	None	Same as Bartlett Ave. 6" mac. base, 1" binder. 1½" top	2758	2.56	Extra interest charges account for difference
Clinton Ave...	Sheet asph. on conc. base	1" binder. 1½" asph. conc. top on old conc. base	11084	1.66	Includes removal of old top, repairing base, replacing broken curb and gutters. Binder and top only $1.21 per sq. yd.

The coarse aggregate used in the construction of both the penetration macadam and the asphaltic concrete is a high-grade open-hearth slag weighing 2,900 to 3,000 pounds per square yard. This slag is produced by one of the local steel mills and is of excellent quality for such purpose, being high in toughness and of an especially gritty nature. To each box of asphaltic concrete during the mixing operation is added a certain amount of slag dust or screenings. The addition of this fine slag gives the pavement a surface that is not slippery, with the result that this type of pavement has been constructed on streets having grades as high as 15 per cent, and to date there has been neither a complaint nor an accident due to this pavement on steep grades. As examples, the following streets have fairly steep grades:

Name	Type	Year Built	Grade
West Court	Asphalt macadam	1915	13 per cent.
Prospect Terrace	Asphaltic concrete	1923	12 " "
Graham Avenue	Asphaltic concrete	1924	10 " "
Monroe Heights	Asphaltic conerete	1922	15 " "

(This street has side strip of hillside brick)

Maintenance

Maintenance costs have been very low on all types. The following table shows the treatment accorded to the old streets. Work other than oiling has been insignificant:

Street	Built	Maintenance
Grant Street.....	1911	Oiled 1924
Hubbard Street.....	1910	" 1919
Railroad Avenue.....	1913	" 1923
Church Street.....	1915	" 1920
West Court.....	1915	No maintenance whatever; 13 per cent grade. Heavy traffic because of construction of large public building.
Court Street.....	1915	None

CHURCH STREET, CORTLAND, N. Y., PAVED WITH BLACK BASE IN 1924

Petroleum By-Product Used as Binder

Petroleum asphalt has been used entirely in the penetration macadam work and for the mixed types as well, except for the work done in 1922, when other material was used. The usual specifications governing asphalt materials for such work were maintained with penetration averaging 63. Average analyses of the various mixtures are as follows:

Mesh No.	Top Passing	Binder Passing	Base Passing
Bit.	8.0 per cent.	7.0 per cent.	6.0 per cent.
200	8.0 " "		
80	18.0 " "		
40	16.5 " "		
10	12.0 " "		
4	11.5 " "	3.0 " "	24.0 " "
2	17.0 " "	55.0 " "	42.0 " "
1¼		35.0 " "	28.0 " "

The mixtures were all manufactured in the municipally owned plant erected in 1922. This plant was rated by the manufacturers at 850 square yards of 2-inch asphalt course. The maximum daily yardage placed was 1,175 square yards per 8-hour day, including all time losses.

Hot-Mix Construction

Construction for the 1925 season, including work on one of the heaviest traveled streets in the city, consisted entirely of black base construction except that water-bound macadam base was used to a slight extent to dispose of whatever large-size aggregate accumulated. In addition, a considerable yardage of old brick pavement has been salvaged through the use of a hot-mix binder and top.

The results secured with the hot-mix types have been uniformly satisfactory and successful. They have been reasonable and, in fact, low in cost as compared to other types in the region. They are admirably adapted to the high-grade local materials. They show no signs whatever of cracks or breaks. They present little difficulty in the way of necessary street openings and when thus opened are capable of easy and unobtrusive repair. They offer a minimum of delay or obstruction to the orderly conduct of the city's business, and their cost of maintenance and repair is negligible. All these factors, combined and effective under every-day conditions, have greatly increased the popularity of black base among the citizens of Cortland, N. Y.

Tree-Planting Suggestions for Fall

Urging prompt action by municipalities and civic organizations in conducting tree-planting campaigns and in making tree-planting plans for the fall season, The American Tree Association, 1214 Sixteenth Street, Washington, D. C., offers practical suggestions to anyone interested. A postage stamp is the only charge.

Fighting the Formation of Waves in Asphalt Pavement

By Prevost Hubbard

Chemical Engineer, The Asphalt Association

THE formation of waves in some of our asphalt pavements not properly designed for the heavy, intensive traffic they are now carrying, has directed engineering attention during the last few years to a means of increasing the resistance of hot-mix to displacement. Excellent progress has been made in this direction, but the writer feels that a note of warning should be sounded in connection with certain trends of practice which, while undoubtedly increasing stability, will, if carried to extremes, result in the production of pavements which are more apt to crack in cold weather on account of contraction.

It has been definitely established that increasing the percentage of filler, decreasing the percentage of asphalt, and hardening the asphalt, will produce a more stable pavement than has frequently been laid in past years, but we have not as yet determined just how far we should proceed along these individual lines.

During the last two years the Asphalt Association has developed a test for measuring stability of fine aggregate asphalt paving mixtures, but the evaluation of this test in terms of service results has not as yet been completed. The test shows the relative stabilizing effects of all the factors above mentioned and indicates that increase in percentage of filler is perhaps the most effective. At the present time data are being assembled in connection with the stability of pavements of known history subjected to various climatic and traffic conditions, and it is hoped that in the near future the influence of these factors will be properly evaluated both with relation to stability at high temperatures and resistance to cracking at low temperatures.

Until this work is further advanced, the writer feels that it is particularly dangerous to proceed to extremes in hardening the asphalt cement or in greatly reducing its percentage in the paving mixture, as it is believed that longest serviceable life and greatest resistance to cracking will be obtained from mixtures carrying the largest percentage of a moderately soft asphalt which will produce the degree of stability required by the traffic and climate which it will have to meet. It is therefore urged that engineers proceed cautiously in modification of their customary practice.

Texas City Completes Paving and Lighting Program

By R. M. Orth

Secretary and Treasurer, Texas City Electric Light and Water Company

TEXAS CITY has just completed the installation of fifteen blocks of paving, consisting of a 6-inch reinforced concrete base topped with a 2-inch hot application of limestone and rock asphalt. This paving is 65 feet wide between curbs and has concrete curbs and gutters.

In connection with the improvement project, the city has also installed a system of 55 ornamental street lights using Union ornamental standards, Form-8 Novalux tops with medium alabaster globes and metal canopy, parkway cable of 3,500-volt capacity, 4,000-lumen, 15-ampere series street-lighting lamps, in connection with Type IL series transformers in concrete base and circuit control through 20-kw., 6.6-ampere, 2,300-volt, 60-cycle Type RO General Electric constant-current transformers, with a Sauter self-winding time-switch.

This lighting installation is to replace the old system of suspended 20-ampere, 10,000-lumen series lamps which have been in service about 10 years. In connection with the general improvement of the main business thoroughfare, the local lighting company and the telephone company are removing all pole lines and overhead line work from the street and rebuilding the lines in parallel alleys.

Standpipes and Elevated Tanks to Reinforce a Distribution System

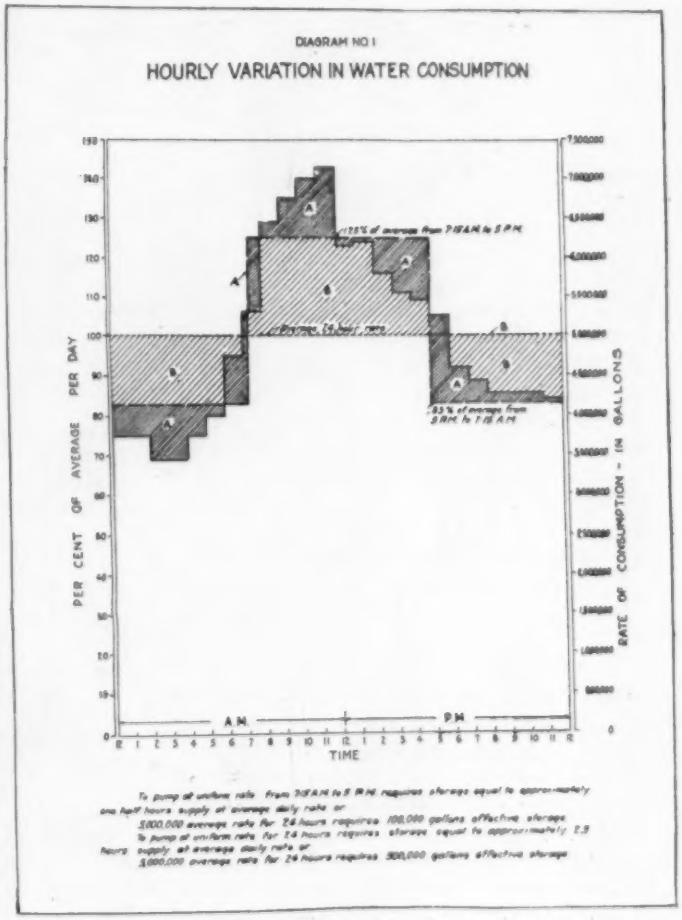
By Nicholas S. Hill, Jr.
Consulting Engineer, New York City

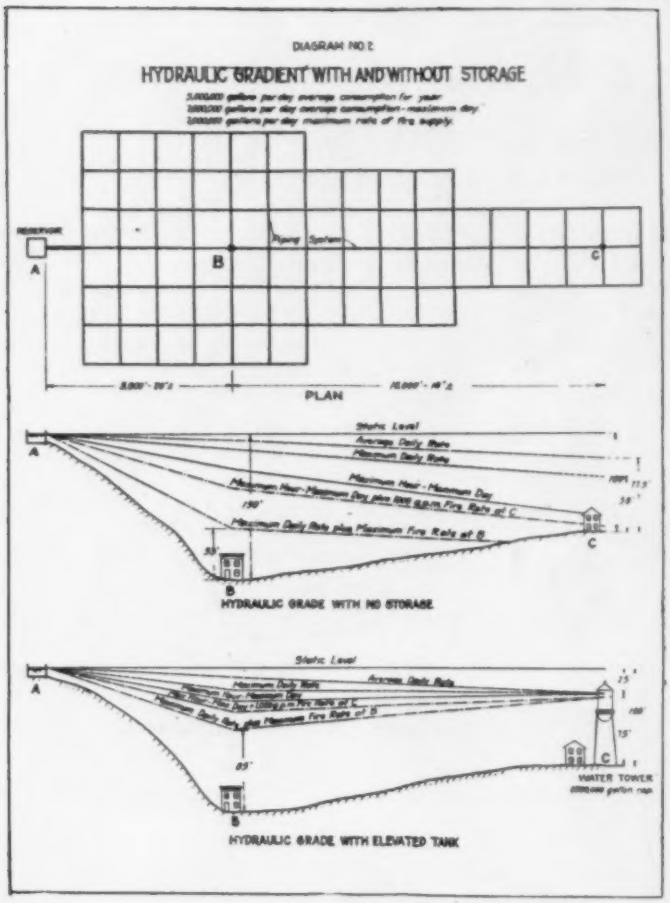
IF due consideration is given to properly located distributing reservoirs, it will frequently be found that a reduction in the first cost of pumping-stations and filtration plants, as well as transmission and distributing mains, will result. As a matter of fact, the economic value of storage located at strategic points on the distribution system is not appreciated as it should be. It is not uncommon, when pressures are deficient, to expend large sums to reinforce existing mains when the same result might be obtained at a smaller expenditure by proper storage in standpipes and elevated tanks. It is also common to see pumping-stations, filtration plants and the like designed to meet the peak demands on a water system when the introduction of storage would equalize the load on them and not only reduce the initial capital outlay required for their construction, but operating costs as well.

If it is necessary to deliver water through a long transmission main, it is often possible to reduce its size if properly located storage on the distribution system may be counted on to meet the peak loads, or the effective service of an existing line may be improved by relieving it of the high friction losses which occur at peak loads. The effective use of wells may also be increased and sometimes the quality of water improved. In small plants the provision of proper storage will permit of part-time operation, thereby reducing the cost of attendance and other operating charges. Short-time interruptions for repairs and adjustments may be made in larger plants where there is local storage.

A standpipe or an elevated tank often solves the problem of providing adequate service in outlying territory where the cost of the piping necessary without it would be prohibitive. The amount of water to be stored, its location and elevation, are local problems, and the determination of these questions should be the result of local studies, but storage makes the operation of water systems more elastic, as the load upon the source, pumping-stations or filtration plants does not have to synchronize with the fluctuating demand on the distribution system.

The problem of properly placed distributing storage is an economic one in that the fixed charges and maintenance cost of storage reser-





voirs must be balanced against the saving in fixed charges and operating expenses which they will effect. The amount of distributing storage to be provided in any given case will therefore depend upon local conditions, but it is undoubtedly true that in a great majority of plants provision for a certain amount of it will reduce not only fixed charges but operating expenses.

Examples of Reducing Costs by Storage

Take, as an example, a city of 50,000 people using an average of 5,000,000 gallons per day and requiring fire service at a maximum rate of 7,000,000 gallons per 24 hours on a day of maximum consumption. Table No. 1 gives the ratio of consumption rate during periods of varying lengths to the average yearly rate. This relation will vary with local conditions, but for purposes of illustration, the table may be taken as typical.

The variations in consumption shown in this table are most important in ascertaining what proportion of the peak load may be economically supplied through the introduction of storage. From this table it is seen that under the assumption that the rate of consumption on the maximum day will be approximately 7 million gallons and with an equal amount to meet maximum fire service requirements, a conservative design with no storage will call for sources, pumping-stations, filter plants, and transmission or supply mains which will deliver water at the rate of 14 million gallons daily for several hours at a time; that is, a plant which would have a capacity to meet the maximum daily average consumption plus the maximum fire service demand.

Computations show that a storage of 1,725,000 gallons will provide for the fire service requirements for six hours and would cost but $45,000.

If the requirements are met by storage, therefore, the capacity of the transmission mains, pumping-stations, and filter plants could be reduced from 14 to 7 million gallons daily. Such a reduction in capacity would effect a saving of possibly $18,000 per mile of transmission main. It is obvious, therefore, that the saving on a few miles of transmission mains would more than offset the cost of storage required for fire protection purposes only.

In the new Tampa, Fla., plant it was found that by spending approximately $85,000 for storage on the distribution system to take care of fire service and maximum hourly peak

TABLE NO. 1

RELATION OF RATES OF WATER CONSUMPTION TO AVERAGE FOR THE YEAR

For Period Covering	Relation of Average Rate for Period to Average for Year	For Period Covering	Relation of Average Rate for Period to Average for Year
(1)	(2)	(1)	(2)
1 year.....	100.0%	2 days.....	137.5%
10 months.....	102.0 "	1 day.....	140.0 "
8 months.....	104.0 "	22 hours.....	144.0 "
6 months.....	106.0 "	20 hours.....	148.0 "
4 months.....	108.0 "	18 hours.....	152.0 "
2 months.....	110.0 "	16 hours.....	156.0 "
1 month.....	111.0 "	14 hours.....	161.0 "
4 weeks.....	113.0 "	12 hours.....	167.0 "
2 weeks.....	121.0 "	10 hours.....	173.0 "
1 week.....	125.0 "	8 hours.....	179.0 "
6 days.....	127.5 "	6 hours.....	185.0 "
4 days.....	132.5 "	2 hours.....	197.0 "

more nearly uniform, and if it were found the effect of the location of the tank upon

loads, a saving of 407,500 could be effected in the cost of installation of a pumping-plant, filtration plant, and transmission mains, or a net saving in the cost of installation of $322,000. The estimated saving in operating expenses by reason of the more uniform operation of the pumping-station and the reduction in the head it was necessary to pump against on account of the introduction of storage, was about $7,000, which capitalized at 10 per cent means an additional saving of $70,000, or a total saving of $392,000.

These figures clearly indicate that, broadly speaking, a moderate investment in storage reservoirs will save appreciable amounts of capital outlay in pumping-station, filter plant, and transmission lines. They also show that this is not the only effect, but by making it possible to operate the pumping-station and filter plant at nearly uniform rates, operating costs may be curtailed.

Table No. 2 shows the relation of the hourly rates of consumption to the average daily rate and shows a variation from 68 per cent of the average during the night hours to 143 per cent during the day hours. It illustrates the varying conditions which must be met when pumping into a distribution system without storage. These percentages do not include fire service peaks. Diagram No. 1 shows graphically the percentages in Table No. 2 and illustrates the possibility of leveling the pumpage rates.

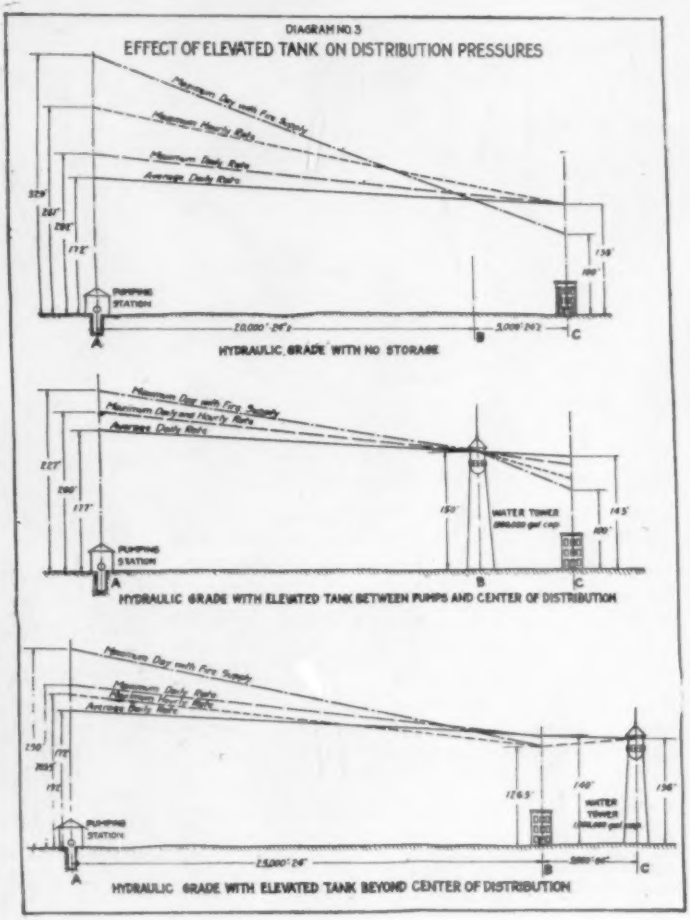
If distributing storage equal to one-half hour's pumpage at an average daily rate of 5 million gallons, or about 100,000 gallons, were provided on the hypothetical system, the pumps could be run at 25 per cent above the average from 7:15 A. M. to 5 P. M., and at 17 per cent below the average from 5 P. M. to 7:15 A. M., as indicated by the pumpage curve A on Diagram No. 1.

The diagram illustrates how much simpler it is to operate a pumping-station and filter plant at a uniform rate for long periods day and night and without the necessity of changing from hour to hour which would be necessary without storage. A 100,000-gallon elevated tank which would effect this result under the conditions named would cost but $8,000. If to this 100,000 gallons sufficient storage were added to meet the fire demand, a pumping-station and filtration plant with an average capacity of 5 million gallons daily could be made to operate at a uniform rate through the day hours and night hours. By introducing larger amounts of storage, the rates of pumping during the day and during the night could be made

TABLE NO. 2

RELATION OF HOURLY RATES OF WATER CONSUMPTION TO AVERAGE FOR THE DAY

Time (1)	Percentage Relation to Average for Day (2)	Time (1)	Percentage Relation to Average for Day (2)
7-8 A.M.	106	7-8 P.M.	88
8-9 "	129	8-9 "	86
9-10 "	135	9-10 "	86
10-11 "	139	10-11 "	86
11-12 "	143	11-12 "	84
12-1 P.M.	123	12-1 A.M.	75
1-2 "	124	1-2 "	75
2-3 "	116	2-3 "	68
3-4 "	112	3-4 "	68
4-5 "	109	4-5 "	75
5-6 "	105	5-6 "	80
6-7 "	92	6-7 "	95



more nearly uniform, and if it were found economical so to do, sufficient storage could be installed to enable the filter plant and pumping-station to operate at a uniform rate through the twenty-four hours of the day as shown in line B, Diagram No. 1.

Remedying Low Pressure

Low pressure is a fault commonly found in water-works systems. Diagram No. 2 is presented to illustrate a way in which this may be remedied by the introduction of storage. At the top of the diagram a distribution system is shown in plan with a reservoir at A, the business district and center of distribution at B, and the residential district remote from the source of supply at C. In the center of the diagram the hydraulic gradients between A and C resulting from different conditions of draft without storage are shown, and at the bottom the hydraulic gradients between A and C resulting from different conditions of draft with storage are indicated. For the purpose of computing the hydraulic gradient, it was assumed that the piping system between the reservoir and the center of distribution was equivalent to 5,000 feet of 20-inch pipe, and from the center of distribution to the residential district to 10,000 feet of 16-inch pipe. It was also assumed that the static pressure at B was 150 feet, at C 100 feet, that the average daily consumption was 5,000,000 gallons, and that the maximum fire service was at the rate of 7,000,000 gallons daily, as before.

The hydraulic gradients without storage clearly show the effect of the assumed drafts upon the pressures at B and C under the conditions assumed. The deficiency in pressures at the higher rates indicated, however, could be remedied by laying larger mains from the reservoir at A through the business section to the residential section at C, but it may also be remedied at less cost by the installation of an elevated tank at C, as shown by the hydraulic gradients after the elevated tank is installed.

Comparison of the hydraulic gradients before and after the installation of storage clearly indicates the beneficial effect which it has upon the pressures, not only at C, but at B and throughout the distribution system. Local pressure deficiencies in parts of the large distribution system may in many cases be similarly remedied by the location of elevated tanks at strategic points.

Diagram No. 3 is presented for the purpose of illustrating the effect of storage on the distribution system upon the operating conditions at a pumping-plant, as well as to show the effect of the location of the tank upon pressures at the center of distribution. It has been assumed that water is pumped to the city through a combined piping system having a discharge capacity equal to 25,000 feet of 24-inch pipe. The average daily consumption and fire requirements has been taken at the same rates as those used in the previous illustrations. From the profile of the hydraulic gradients with no storage, it will be noted that it is necessary to maintain pressures at the pumping-station A ranging from 172 feet to 329 feet, if an ordinary pressure of 60 pounds or 138 feet and a fire pressure of 43.4 pounds or 100 feet are maintained at the center of distribution C.

If an elevated tank with a storage capacity of one million gallons and 150 feet high were placed at B, the hydraulic gradients would be as shown on the profile marked "Hydraulic Grade with Elevated Tank Between Pumps and Center of Distribution." By comparison of the hydraulic grades with no storage and those resulting from the introduction of an elevated tank at B, the pressures at the pumping-station required to maintain equivalent pressures at the center of distribution C may be reduced from 60 to 100 feet under the maximum conditions of operation.

On the profiles marked "Hydraulic Grades with Elevated Tank Beyond Center of Distribution" with the tank at C, it is seen that more uniform pressures may be obtained at B with a tank of the same capacity as with the tank between the pumps and the center of distribution, but 14 feet lower, and that the pressures at the pumping-station will range from 172 to 250 feet.

A comparison of the hydraulic gradients with and without storage indicates clearly that storage not only reduces the fluctuations in demand upon the pumping-station, but also equalizes the pressures against which water must be pumped to maintain a given pressure in the distribution system. The effect of reducing the pressures at the pumping-station, of course, not only means a saving in fuel, but pumps of less rugged, hence less costly, construction, and transmission mains of less thickness, all of which reduces the capital cost.

Diagram No. 3 also illustrates the effect of changing the location of the storage in the distribution system and shows how the best results may be obtained by a careful study of local conditions before selecting the site for a proposed storage tank.

ACKNOWLEDGMENT.—From a paper read before the American Water Works Association at Buffalo, N. Y.

in transit is entitled at least to the

A Plea for Municipal Emergency Homes

Capital in Transit Has Many Privileges; Labor in Transit Is Entitled at Least to Shelter in Time of Need

By Edwin Brown

IN 1909, in the beginning of my crusade in behalf of the destitute and homeless in the cities of this country, an editorial in the *New York World* said that men of means and benevolence who interest themselves in municipal lodging-houses are making good investments of time, money, and sympathy, but that they would soon find themselves facing an appalling national problem which sooner or later would have to be met. This bore out the conviction that I had already reached that only through a humane, honest system of polity by the nation at large would a real solution of the problem be found.

Meantime, however, our individual cities must meet the situation, and my observations have led me to the firm belief that this can best be done through the scientifically conducted municipal lodging-house—or, preferably called, municipal emergency home—created and supported by general taxation. This institution alone will not permanently solve the problem of destitution, but it is at least a valuable unit in our efforts towards this end.

Cities must come to realize that they must meet the workless, moneyless man with something other than the city jail, the command to leave town, or the humiliation of a makeshift charity. Not until then will we cease to create the criminal and the undesirable citizen, and instead promote patriotic, law-abiding citizens. Every human being in need

THE HOTEL DE GINK, BUFFALO'S MUNICIPAL FREE LODGING-HOUSE

MUNICIPAL LODGING-HOUSE, NEW YORK CITY

To the Mayors of American Cities

The author of this article is devoting his time and money to promoting the movement for municipal emergency homes. He believes that the mayor of every city where vagrancy or seasonal unemployment is a problem would profit by reading his book, "Broke—The Man Without the Dime." Any mayor who cannot find this book in his local public library can obtain a copy without charge on application to Edwin Brown, Del Mar, Calif.

FOOD AND SHELTER FOR THE HOMELESS IN NEW YORK'S LODGING-HOUSE

of help in every city in the country should be offered the haven of the municipal emergency home—and there should be no lock on the door. The keen of vision can quickly grasp the worth of this institution as an economic and social function, for that part of our social structure known as labor does not stand as a tool to be used today and cast aside tomorrow—it is an absolutely necessary part of our community life and must be kept strong if the entire structure is to stand.

In this country work is spasmodic and sporadic. Here and there some great building or a new city is being built, new mines developed, great railways, highways and waterways constructed; and at all times of the year there are seasonal crops to be gathered in some part of the country. Thus, when a man has completed his skilled or unskilled work in one place, he is often forced to go on to another, joining the army of moving workers. It must not be forgotten that it is on these men that our municipalities frequently call for aid when snow blocks the highways, or other emergencies or disasters demand mass labor.

The municipal emergency home is the expression of the humanity, the culture, and the intelligence of every enlightened community. It is not a charity and should not savor of this in the least; it is labor's privilege by the right of toil, the privilege of the artisan and the craftsman, and of the man who has nothing to give but his arms. The laborer, though he may not be a property owner, is a taxpaying citizen, for when a man pays from his wage for a bed or a meal he is paying taxes just as much as the owner from whom these necessities are bought. And if these workers find themselves destitute—and there are many legitimate reasons why they sometimes reach this state—they should be able to enter the municipal emergency home, not as cringing dependents, but on their right as taxpaying citizens. Capital in transit has many privileges; labor in transit is entitled at least to shelter in time of need.

In my "tramp" study of unemployment and destitution I found that about ninety per cent of the army of wandering citizens were honest, industrious, normal men and women who were able to work and were seeking work. The remainder proved to be abnormal men, undeveloped mentally or physically, or chained by habits of vice to abnormal desires and appetites, and a plea is made for the help of these, as well as for those who are equipped for self-support. To the municipal emergency home will come the aged and the sick, the mental defective, and the loitering failure, and for all of these the city must find a destination in some one of the many municipal and state institutions created to meet such needs.

The success of an emergency home after it has been correctly and adequately constructed, lies almost entirely with the superintendent. He should be, in the broadest sense, a humanitarian, a sociologist, and a psychologist—qualifications abolutely essential for the head of such an institution. It is to be recommended that the choice of a man for this position rest with a committee of representative citizens who in cooperation with the city department of health should supervise the operation of the home.

For examples of splendid municipal emergency homes those of New York and Buffalo should be referred to. These, however, are lacking in one essential—a laundry in which the man with but one shirt and one suit of underclothing may wash them himself or have them washed. It is true that fumigating chambers will destroy all vermin and germs, but freshly laundered clothes on a rested body go a long way towards dispelling despondency and maintaining self-respect, and bringing success in the search for employment.

CLEANING THE DORMITORY IN THE MUNICIPAL LODGING-HOUSE, NEW YORK

Street Railway Paving

Discussion of Article Which Appeared in THE AMERICAN CITY for July, 1926

Editor,
THE AMERICAN CITY:

In THE AMERICAN CITY MAGAZINE for July, 1926, appeared an article by J. W. Howard, which attempted to justify the practice of assessing paving costs against the street railways. A number of inaccurate statements are made in this article and I wish to correct the wrong impression which may have been created thereby.

Mr. Howard states that because of the presence of a street railway the initial cost of the construction of the pavement per square yard in the track area is more than that of the pavement outside the track area. This is a mistaken idea. The existence of a solid foundation for the track, usually of concrete, renders it unnecessary to lay any other foundation for the pavement, and consequently the cost per square yard usually is less in the track area than elsewhere in the street.

Damage to the pavement resulting from the decay of wood ties is referred to in this article. It is well known that wood decays when it is subject to alternate wetting and drying. When kept continuously dry or continuously wet, however, it has a long, useful life. Wood ties in open-track construction decay more or less rapidly, but wood ties in paved track remain in good condition almost indefinitely. I doubt very much if Mr. Howard could point to many actual instances of decay of ties being the cause of pavement failure.

The return to popularity of the old tram rail (which I assume to be the type meant by the reference to an L shape) is interesting news. In an effort to prevent narrow-tired wheels from getting caught in the track, tram rail was superseded by grooved girder rail during the latter part of the era of the horse-drawn vehicle. With the present general use of rubber-tired automobiles, the need for grooved girder rails has largely disappeared and some railways are now using T-rails. There is no evidence to indicate that this causes any greater wear on the pavement than occurs with grooved rails. The old tram rail is so little used nowadays that its effect on pavement is not worth considering.

Astonishing indeed is the assertion that "the presence of tracks was the principal cause of ruin of the wood block pavement on Broad Street, Newark, N. J." Such an explanation is especially hard to accept because the serious failures all occurred at points remote from the car track. The comparison made between Broad Street and West Park Street is fantastic, as the latter is a one-block street which goes nowhere in particular and carries very light traffic, while the former is a wide thoroughfare carrying a tremendous volume of traffic of every description. The comparison made with other streets is only slightly less far-fetched. Whatever the reason for the failure of wood blocks on Broad Street, it is safe to say that the presence of railway tracks had nothing to do with it.

The statement that an ever-increasing percentage of the people no longer use trolley cars is another instance where Mr. Howard is at variance with the facts. It is true that more people are using automobiles today than ever before, but more people are also using the electric railways. The reason is that the general riding habit has been increasing steadily year by year.

Perhaps Mr. Howard has unconsciously hit upon the solution of the problem when he calls attention to the legal necessity for the drivers of private vehicles to give the right of way to trolley cars. If, as he says, the public can make little use of the track area on this account, why not leave this area unpaved, a reserved strip in the center of the street, as is done in many cities in the South, New Orleans, Baltimore, Boston and elsewhere? This could mean no serious loss to the general traffic if it uses the track area so little, and would be very advantageous to the railway. No doubt the railways would be glad to pay for the construction and maintenance of paving at cross-streets if they were relieved of this burden in the middle of the block.

JOHN A. MILLER, JR.,
Associate Editor, *Electric Railway Journal.*
July 8, 1926.

Reply by J. W. Howard, Consulting Engineer on Pavements

Editor,
THE AMERICAN CITY:

The writer of the article, "Street Railway Paving," published in THE AMERICAN CITY July 1926, begs to reply to the letter of June 8 sent to you by J. A. Miller, Associate Editor of a magazine published in the interests of street railways.

A pavement consists of its combined lower layer or foundation and its upper layer of stone block, brick, wood, asphalt, etc., and not of the surface layer only, as Mr. Miller implies. Therefore, the cost of a pavement because of the extra work of adjusting it between and over wood ties and against from four to eight sides of rails, for single or double tracks, is more expensive than the same pavement where there are no tracks.

Mr. Miller says that because of wetting and drying the ties in open tracks decay. There are relatively few miles of street railway track area in the cities and towns of the United States which have pavements that are not somewhat open or porous. Macadam, stone block, brick, and other pavements with open and imperfect joints in them or between the blocks, are used in track areas almost everywhere except in the densely populated zones of the largest cities. Irrespective of the kind of pavement between rails, water always percolates through to the ties and under the pavement between and adjacent to the track by running down in the longitudinal joints between the rails and pavement.

It is encouraging to have a trolley-car representative say, "The old tram (L-top, step or side-bearing) rail is little used nowadays." It has been a long, hard struggle in the last thirty-eight years, in which the writer as consulting engineer on pavements to many cities has taken

part, to compel street railways through franchise agreements and by legislation to use street-railway rails with flat heads or tops having a groove for the car-wheel flanges. Such a rail facilitates general traffic, proper street cleaning, etc. The article in the July issue of THE AMERICAN CITY was in the interest of the public and included a warning not to return to the objectionable L rail which is now beginning to replace the groove rail in some places because it is cheaper.

There is other proof than the personal knowledge of the writer that the presence of tracks in Broad Street, Newark, N. J., was the principal cause of the destruction of the pavement there and the need of laying a new pavement over the entire street at the end of ten years from the date of construction of the one injured beyond economic repair. A report of W. A. Howell, Engineer in Charge, Bureau of Paving, Newark, N. J., published July 18, 1921, says: "Within a few months after completion of the pavement [on Broad Street] the blocks commenced to heave and buckle in many places immediately adjoining the tracks. . . . Vibration of the rails and ties continued and the trouble was extended from 5 to 15 feet from the tracks. . . . In 1909 the street-railway company laid one of the most carefully constructed pavements ever laid on Broad Street. . . . In 1909 the track pavement was watertight; in 1914 it was not. Heavy car traffic had caused wear on the ties and consequently a spring of the rails. . . . In this city there are miles of wood block [and other pavements on streets without tracks.—J.W.H.] in excellent condition; Mechanic Street, Mt. Pleasant Avenue, High Street, Roseville Avenue, down nearly ten years. . . . Had there been no street-railway tracks on Broad Street, the wood block pavement would have been in nearly as good condition as Roseville Avenue and Mt. Pleasant Avenue."

Since writing the article published in the July issue of THE AMERICAN CITY, the writer has received a printed copy of the twenty-six reasons, which included the less number stated by the writer, prepared by city engineers and city attorneys of New York State, which reasons were successfully used to prevent the New York State Legislature from passing or adopting the trolley interest paving bill before it, which would have imposed an expense of at least one million dollars per year on the taxpayers of New York State.

If it were not for writing off the enormous capital invested in street-railway tracks and equipment, a scientific and economic study of the auto-bus transportation of Berlin, Paris or London might cause the removal of many miles of street rails from portions of cities of the United States and the use of mobile and pliable auto-bus routes within portions of cities and towns, as well as between them; not only for the benefit of pavements and general traffic, but also in the end probably more profitable for the transportation companies.

J. W. HOWARD.

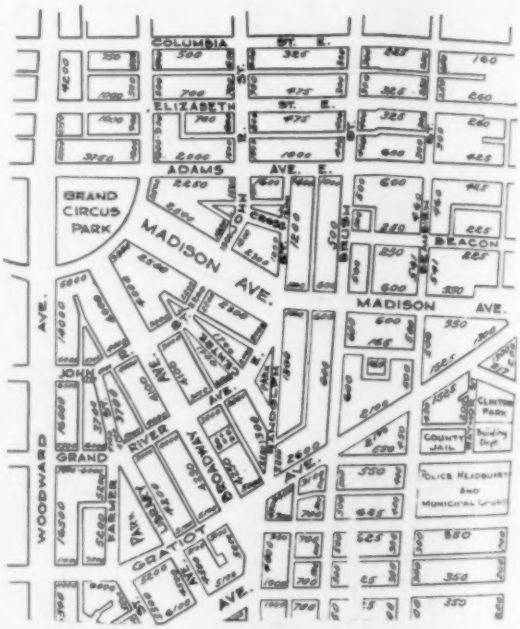
Equalizing Assessment by Land Value Maps in Detroit

LAND value maps, such as those discussed as one of the essentials for the scientific assessment of real estate in an article on "Tax Maps, Record Cards, and Land Value Maps," by Campbell Scott, in the May, 1926, issue of THE AMERICAN CITY, have been issued this year for the first time by the Detroit Board of Assessors.

For convenience in this work, the city was divided into 64 sections, and a separate map, showing the basic land valuations as tentatively fixed by the Assessors, was drawn for each section. One thousand copies of each map were printed for distribution, affording the taxpayers every opportunity to compare valuations and, where the amounts seem inequitable, to bring the matter to the attention of the assessing officials before the valuations are finally confirmed.

On the reverse side of each map is printed a description of the procedure followed by the Assessors, including details as to the tables and methods used in assessing lots of varying depths, business corners, residential corners, triangular lots, industrial sites, and tracts of land not yet platted or subdivided.

In the opinion of the Detroit Bureau of Government Research, which is now cooperating with the Board of Assessors in the preparation of a manual of assessing procedure to be published at a later date, the publication of these land value maps is a distinct forward step towards attaining for Detroit the most modern, scientific, and equitable system of assessment possible under the present tax laws.



A CORNER OF MAP ON BACK OF DETROIT'S TAXPAYERS' NOTICE. PROPOSED ASSESSED VALUATIONS AS FIXED BY THE BOARD OF ASSESSORS FOR 1926, PER FRONT FOOT FOR A DEPTH OF 100 FEET

City Official and City Hall Reporter

By Francis E. Kenny

Author of "The Press and the Police Department," "Publicity for the Fire Department," "Supressing Municipal News and Its Harm"

THEATRICAL and sports promoters know the value of newspaper publicity. Municipal officials, with few exceptions, do not.

The day has arrived when heads of the different branches of city, town and village governments must take lessons from those who have reaped the benefit of proper publicity. Public officials know already—at least many of them do—of the damage unfavorable publicity can do. They should study effects in the opposite direction.

I have been a newspaper man for fifteen years, constantly thrown in close touch with the affairs and officials of different cities. I have made a close study of the subject of publicity and find in most instances a desire on the part of officials to suppress news rather than to give it.

The condition is unfortunate. It is largely responsible for much of the dissatisfaction with city governments. The officials perhaps, will argue the other way, but nevertheless I am convinced that proper publicity constitutes the solution to many ills of municipal affairs to-day.

The fault is more pronounced among new officials; they come into office with the full intention of giving just so much and no more news to the press. They attempt to follow out their theories with disastrous results. The average city hall reporter knows more about the city government in some of its aspects than some officials ever will, and if he is blocked in getting his news, some one is going to suffer.

I have had incoming officials call me into their offices and in rather boastful tones tell me their intentions in about this fashion: "From now on this office will tell you what we wish said about our various activities and proposed movements. The old policy is to be changed." Can you imagine any red-blooded newspaper man accepting that ultimatum as final? And yet a new corporation counsel undertook one time to make me swallow that, hook, line, and sinker. Within two weeks he had a course of education in news that caused him to alter his views completely.

Once a newspaper man learns of an attempt to suppress any news of the municipal ship, he makes preparations to get that news somehow, somewhere. It is a rare thing when he fails.

I can understand new officials' wanting to keep certain things quiet—for example getting rid of the "holdovers" from the previous administration. They are often justified in doing that very thing; for, after all, certain political jobs are still regarded as patronage and therefore are not really safe, but such removals constitute news, and as news must be published.

New mayors are peculiar people in many ways. As a rule, it takes them weeks to become accustomed to affairs and to overcome the feeling of importance that arrived with election. With an eye to following their pre-election promises they will, at least for a time, be worried about publicity matters and very often will seek to dictate the news which should be published.

Such a move is ill-advised. It means that the city hall reporters will ferret out the very things the chief executive seeks to suppress and will write of them in sarcastic vein. When things which have been kept purposely quiet by an administration finally do reach the public, it can readily be appreciated that harm is done. This harm has a lasting effect and makes excellent campaign ammunition for the opposition. The layman may forget, but the politician never.

Thus, in the opinion of this writer, the most

Cooperation Between the Municipality and the Press

It is a wholesome thing, sometimes, to ponder the frank criticisms and suggestions of one who does not always feel free to say what he really thinks. For this reason the accompanying article by a veteran newspaper man will, it is believed, be of practical value to many of The American City's readers. Whether the shoe fits exactly or not, it may serve in some cases to carry city officials and department heads over paths that would otherwise be too thorny for comfort or efficiency.

advisable policy for the mayor is to take newspaper men into his confidence. He should discuss with them proposed improvements, the cost of which may at first glance seem prohibitive. If the newspaper men can be shown that the improvement is for the general good of the city, even papers of opposite political faith will not oppose it.

Newspaper men have a code of ethics which is rigorously observed; it provides, among other things, that a confidence must not be violated. Hence, no official should hesitate to take a representative of the press into his confidence in the event that a municipality is planning some move which might be endangered by advance publicity.

For example, there are times when a city plans to purchase a piece of property. Property owners so informed will on most occasions increase the prices, forgetting for the moment their civic duty. Until such a deal is consummated, publicity should be withheld, and newspaper men will readily cooperate in a case of this character.

On the other hand, if they obtain the information outside of official channels, they might not feel bound to observe any secrecy, but rather would proceed to write what they have heard. "Tips" are forever being distributed in municipal circles—a further reason why the chief executive should seek cooperation from the press rather than pursue a policy of secrecy.

Publicity and the Annual Budget

One thing that constitutes a thorn in the flesh of every administration is the annual budget. That usually means more taxes—and taxes mean discomfiture among property owners. Criticism is bound to come. Consequently officials approach this period with some fear and trembling, especially if there is to be a substantial increase.

Hence, as a general thing the officials decide upon a policy of keeping the details quiet, especially if the budget is made up just before election time. Conferences are held and details withheld as long as possible. But newspaper men collect them from various sources and proceed to publish them, and then things are wide open. Protests come from different sections, and the administration finds its plans upset.

There is a solution to all this—cooperation from the press. The mayor should prepare a list of needs of the city and specify reasons for increasing the budget. He should go into details and explain everything. Fully acquainted with the facts, understanding the necessity for more money, the public will seldom protest.

The cost of government increases yearly. As each community grows, it takes more money to develop it and keep it improved. But the man in the street doesn't stop to think of that, and he won't unless it is properly explained to him. There will be protests after the public is informed, but often these protests will be justified in certain details and the administration will realize that it is not necessary to spend such sums that year.

The public should be informed about the need of increasing the size of police and fire departments, and of more adequate salaries for officers and men; increased costs of operating the public works department; costs of legal fights to inquire into high gas and electric light rates, and so on. In other words, it should be a campaign of education. Then, if there is criticism, it will be constructive to a large extent. But will suppression of details bring this about? Manifestly not, because a newspaper man compelled to seek his facts outside is not going to favor officials who deny them to him in honest, open fashion.

So much for the general city and the mayor's office. I want to touch upon different city departments, and in doing so my comment also covers whatever offices correspond to those mentioned, because the theory of cooperation with the press applies in the town and village as well as in the city.

Litigation and the Courts

From the department of law information should emanate regarding all litigation involving the city. Actions against the city should be enumerated and explanations given.

Much of this information will be forthcoming in the courts, anyway, and the corporation counsel might as well have it given out in advance. Settlement of suits of all kinds should be told about, including actions for damages due to injuries suffered on the streets, as well as those attacking some city regulation, be it zoning, assessment, or some other ordinance. I will say that the average corporation counsel is ready to cooperate in matters of this kind.

The Governing Body of the Municipality

Now we come to the governing body of the municipality, village board, town board, city council, and so on. Village and town boards are very often difficult to handle; the members are over-impressed with their own importance, and it is reflected in their attitude toward the press. This is quickly corrected by newspaper

men.

The press can cooperate with these boards in keeping the public informed as to public hearings on proposed improvements and other measures to be acted upon at different meetings. People will complain after they have learned of action being taken without their knowledge on something they oppose, but if the officials are fortified with advance publicity, the possibility of such criticism by taxpayers will be avoided.

The desire to suppress news is quite pronounced among police officials. The average police head feels, unfortunately, that along with his other duties he should act as a sort of censor, and, as a general plan, will order that burglary news be recorded in a confidential book and kept from the eyes of the police reporters.

In the average city this serves no good purpose. It doesn't prevent burglaries. It doesn't satisfy people who have been robbed. It doesn't fool those who understand. Sooner or later the information leaks out, and then it is the police department that suffers.

Police Departments

Police heads should understand that there are "leaks" in every department. In other words, there is always some man who is ready to divulge "family secrets," ready to tip off the reporters when there are robberies. Newspaper men getting their information in this way do not consult the police heads, but write their stories in sarcastic vein, referring in pointed sentences to the policy of news suppression.

Of course the heads of police departments claim that publicity about burglaries frightens people. The answer to that is that suppression of burglary news lulls them into a false sense of security. A policy of cooperation with the press will bring far better results.

The newspapers can be of service in publishing warnings about certain types of "flat-house crooks," confidence men, bad-check passers and other crooks who live by their wits. They can post people upon the necessity of taking every precaution to guard against the operations of these men. They can broadcast descriptions; can urge the people to notify the police at once when a man whose actions are suspicious is seen loitering in a neighborhood.

Right there you have a most important function of a newspaper, and every live editor and reporter is ready to cooperate.

There is another angle. Very often the police have a "line" on the perpetrator of a series of burglaries. They are waiting for the proper time to make the catch. To publish information of this character will cause the suspect to leave. All that is necessary is for police officials to take the reporters into their confidence, and the crooks will never get any of the information.

Fire Departments

Contrary to the opinions of many officials, there is much news matter concerning the fire department of interest to people outside of actual fires. They like to know of the purchase of new equipment; of increases in the force; of changes in alarm signal codes; of a dozen-and-one other things affecting the department. Details of this character should be made available to fire headquarters reporters.

The value of cooperation between press and fire departments can be readily appreciated in preventing political influence which would injure the morale of the men. Politics should be kept out of this department, and the reporters will do their share if they are informed of anything of unsavory nature.

Very often in cities there will be opposition to the purchase of new apparatus because of the cost. Politicians have a way of blocking such purchases. The way to meet this opposition is to have the newspapers tell of the need of the new equipment. When it comes to a question of enough apparatus to insure proper protection, the public will soon demonstrate its sentiments in the matter.

Newspapers are glad to help in spreading the gospel of fire prevention. Every year when there is an observance of Fire Prevention Week, the newspapers demonstrate their value. This cooperation can be enlisted throughout the year for publishing warnings about other fire hazards. In fact, the field of cooperative publicity is unlimited.

Other Municipal Departments

Health departments will also find ready cooperation from the newspapers in issuing warnings of all kinds and in keeping people informed as to health measures. Health officials should be thoroughly familiar with publicity matters because of the great benefit to be derived from proper presentation of information to the public.

People like to be informed of work done on the streets and of other functions in the department of public works. Commissioners will find newspapers glad to tell of the progress of street work, installation of water-mains, and sewers, and of contemplated improvements.

Cooperation on the part of the people in observing different regulations can be solicited through the medium of the press.

The comptroller or tax collector should keep the public informed as to assessments and dates for collection of taxes. Of course there are certain legal advertisements published at different times, but there are many who do not see these notices. Officials should have the newspapers run reading notices about such matters. Figures showing amounts collected as compared with the year previous should also be given out for publication.

The theory of keeping the public informed applies to all departments. A close study by each official will reveal how best he can cooperate with the press and in turn receive cooperation. There should be a greater understanding between the householder and the government. That is obtainable through honest publicity. Some will say that people are not interested in ordinary governmental affairs. Perhaps that is true to some extent, but proper publicity is the best corrective of this condition.

The main essential, however, is that officials must outgrow the tendency to suppress news when they entertain fears as to the outcome of some measure. A thing which is above board and which is explained to the residents of any community may draw some criticism, but in the main the taxpayer will be satisfied. If, however, the operations of a city administration are governed by a policy of suppression, the intelligent taxpayer will never be content.

Mental Prostitution

An Editorial from the Journal of Social Hygiene Suggesting the Suppression of Salacious Magazines by Organized Community Effort

PHYSICAL prostitution in its commercialized aspects has been largely eliminated in the United States; mental prostitution, however, seems to be on the rise. The red light district has gone, but the corner news-stand continually enlarges its stock of unsavory, unsound, and unwholesome publications which foster and cater to all that is foul in thought and attitude. The exploitation of this literary muck is the more vicious because it is not restricted to adults but seems to be directed largely toward those most in need of protection, i.e., minors and morons.

Tawdry Tales Worse Than the Dime Novel

The "dime novel" of the nineties with its lurid covers and violent contents was the subject of much concern to the parents and educators of those days, but it seldom relied entirely upon the worst in sex experiences for its plot and appeal. Nick Carter, Diamond Dick, The Liberty Boys of '76, and their fellow heroes were impossible characters, wise beyond Solomon and braver than a Roland or D'Artagnan, but were the trite and bombastic accounts of their adventures as dangerous to the minds of youth as are the present crop of tawdry tales? We doubt it.

"Once again the old scout's trusty revolver blazed forth and three more redskins bit the dust!" It would be easy to point out a number of ways for improving this type of narrative, but it could never be charged with the taint of smut. Pick up, though, almost any of the large crop of present-day "confessions" and "pungent stories" magazines and you will find page after page of crudely written stories which paint vice and perversion most attractively and untruly, and emphasize the worst in antisocial sex practices and manifestations. They are not the fiction of beauty, of honesty, of decency, of purpose, but merely the drivel of hack writers, the "pot boilers" of literary scavengers.

Political Censorship a Dangerous Remedy; Economic Weapons the Most Effective

Political censorship, no mater how well meant, is a dangerous remedy. But, as *The World* (N. Y.) said in a recent editorial regarding vicious theatrical productions, "some regulation is necessary and inevitable, partly because without it commercialism would carry indecency to such lengths of perversion and grossness that it would be a public nuisance, and also because if we fail to regulate a little and intelligently we shall in the end be regulated a lot and very stupidly."

Many wise minds are convinced that if censorship is to be effective and successful it must originate not in the courts but in the home. Childhood and youth are ages of imitation. Like father like son. Once let parents and our older youth withdraw their patronage from printed trash for the better class of literature and they will find many youngsters following close behind.

It is probably true that a majority of the publishers and dealers who profit by the sale of salacious magazines will not be swayed by any appeal based on altruism or decency. Their vital spots are their purses, and the most effective weapons for use against them are economic ones. If community sentiment can be aroused to the point where any large group of citizens will inform their news dealers that patronage will be withdrawn unless a clean-up is made, they will meet with surprisingly good results, particularly if they stick to the job.

Are You Prepared for Winter, as Are These Municipalities?

BARBER-GREENE SNOW LOADER OWNED BY THE TOWN OF BROOKLINE, MASS.

We are indebted to Henry A. Varney, Town Engineer, for this photograph. Mr. Varney says: "I cannot give you any figures as to the cost of operation and can only say that the town authorities are very much pleased with the snow loader, and consider it a very valuable addition to their equipment for handling snow"

UNDOING THE WORK OF JACK FROST IN THE SEWERS OF MINNEAPOLIS

When the frost got too deep in Minneapolis and froze the storm sewers last winter, the Street Department used a boiler to generate steam for clearing the outlet to take care of the run-off from melting snow. The boiler was moved around by a Caterpillar tractor fitted with a snug cab for the driver

City-wide Cooperation Brings Completion of Paving Program

Civic Organizations Aid City Council and City Officials to Solve Critical Problem

THE City Councils and the Mayors of Louisiana, Mo., have for many years been unanimously in favor of a paving program for the city, but opposition made the first attempts unsuccessful. In the early part of 1925 the Louisiana Chamber of Commerce and the Louisiana Rotary Club, the latter participating through its Business Methods Committee, stepped in and offered assistance in the way of moral and financial support.

At a special election which was called by the Council to vote bonds to procure money for paving intersections, members of these two organizations and of the Century Club served as judges and clerks without pay and worked valiantly to put the proposition over. The Chamber of Commerce paid for the publication of the legal notices required by law to be published in connection with street-paving proceedings. All three organizations worked harmoniously and persistently.

STREET IMPROVEMENTS UNDER WAY IN LOUISIANA, MO.

1. Tractor of the Duncan Construction Company beginning excavating on the street paving project, October, 1925. 2. Steam shovel excavating in western part of the city. 3. Koehring paver at work in business section. Excavation at side of paver is being made by Southwestern Bell Telephone Company for installation of underground wires for six blocks through the business section. Pavement in business section was poured in two sections to facilitate the laying of pipes for wires. 4. First block completed in the third paving district in May, 1926. 5. Street scenes on the opening day, May 29, 1926, when the improvement of 23 blocks of 7-inch concrete paving was thrown open to the public

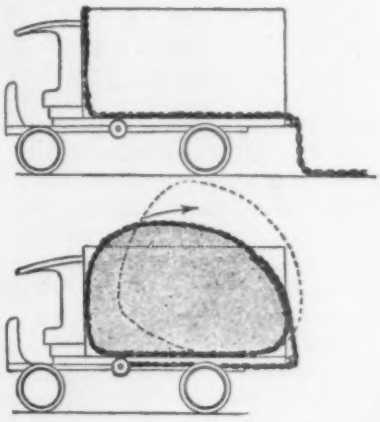
The $75,000 street improvement which was organized on January 2, 1925, was completed on May 29, 1926, and the event celebrated properly. The first section of the paving program to be finished gives the city of Louisiana a system of paved concrete streets from the river-front extending directly through the

center of the city to its western limits. The completion of this section makes possible the early completion of a paved highway on Route No. 22 in Missouri. The present street improvement comprises 23 blocks of 40- and 30-foot pavement.

The improvement plan includes a $10,000 bond issue for an electric white way which will be installed this fall to light the business section of the city.

A Simple Unloading Device for Non-Tipping Refuse Trucks

THE City Refuse Division of the District of Columbia uses a number of 2-ton Autocars with an unusual device for discharging the load without tipping. As shown in the sketch, reproduced through the courtesy of *Power Wagon*, the device consists of three chains connected by bars laid along the floor, whence, preparatory to unloading, they converge to a ring hitched to a hook high up on the fore part of the body. The first diagram gives an idea of the chain system in this position, hanging down at the back. When the load has been put on, the end of the chain at the front of the body is detached and dropped back over the load, the other end being brought forward and attached to it. Thus an endless binder encircles the load. The chain is then connected with another laid under the body at the back and over a winch head, and the complete load is then drawn or rolled backward, as in the second drawing.



The Necessity of Keeping Filter Plant Records

By E. L. Filby

Chief Engineer, Florida State Board of Health, Jacksonville, Fla.

MANY folks are interested in our filter plants and all water plants. Take the matter of records from the viewpoint of the taxpayer. He reads a brief summary in the local papers saying that the plant pumps 300,000 gallons of water a day from the Coosaw River; that to this water is added 43 pounds of alum and 22 pounds of lime each day; that the water and its particles in suspension combine with these chemicals; that the result is a complex chemical compound that settles out in large basins; that the water then passes through beds of sand and gravel and into a storage reservoir or pump-pit. Just before going into this basin, a gas called chlorine is added, at the rate of two parts of gas to ten million parts of water, acting as a sterilizing agent introduced as a safety first measure. The water is then pumped to the mains and we get it at the tap—and what's this? It costs just so much to deliver each gallon of purified water to the distribution system. Wonder how they got that figure—must have pretty complete records to know how much it costs.

Then there is the business man who knows all the above but wonders how much it costs to pump water, how much it costs to treat it and how much to sterilize it. could any process be cut out and thus save taxes? How do costs compare with his business costs? And possibly, if there is agitation to sell the water plant to a privately owned and operated corporation, which will be cheaper for him—municipal or private ownership?

Then Mr. Politician wants to know: Was there any profit made by the plant last year or is it a drain on the public funds? Then the public health official, who requests lots of information, especially when he is engaged in a study of your plant for the certification of the supply to the Federal Government. He wants the salient facts of the plant, and the records indicate to him whether the water is safe by the grace of God or through the diligence of the superintendent.

The fire insurance underwriter wants data as to pipe lines, pumps, valves, cross-connections, etc. If the superintendent has no records of new construction and layouts, how can he hope to secure changes in rating with subsequent saving to the consumers. The only answer is in the records. If a superintendent is called

upon to defend his position, his plant reputation, his only defense is his records. He wants to know if he can save money here or there. If one item is out of balance in his plant, the only way he can tell it is by his records. I know book work and paper work were the curse of the officers in the late war, but all the red tape served a purpose other than providing jobs for chair-warmers. I do not believe in red tape, but some paper work is vitally necessary at a filter plant and should be kept. Costs cannot be determined except from records, and everyone is interested in costs. Successful operation of a filter plant is not only turning out a safe-to-drink, non-corrosive water at all times, but doing this at a reasonable cost. The cost of the time spent on records is well worth while. If a manager desires an increase in rates, can the accountant figure from the records the cost of delivering a gallon of water? If the manager does not know the cost, how can he hope to get an increase in rates?

Suppose a plant is using alum and lime and no records are kept of the amount used and the stock on hand. Some day an operator will report, "The alum is about out." The superintendent or manager scurries around, telephones or wires for some, or sends a truck to a nearby plant. The carload ordered may come through on schedule time; it may be six months getting through, especially if there should be a freight embargo. A record of stock on hand, the amount used today, and the stock left, would show that the time was approaching to order more. Substitute chlorine for alum and lime, and assume a badly polluted water to start with, and the seriousness of the situation is apparent. A certain railroad softens water for use in its locomotives by utilizing lime. The softener man notified the division superintendent that he was out of lime, and it was two weeks later that we visited this plant and no lime to soften the water had been received. The damage by scale could not be estimated, but a record of daily use and stock on hand might have prevented this lapse in treatment.

Your plant may represent an investment of public funds mounting into the millions. Every precaution should be taken to safeguard this investment, to see to it that it is handled in a fair and honest manner. Would you entrust your life savings to a bank that kept only slipshod records or no records? You have at your plant more than simply a water plant; the official in charge holds the reputation of the community in his hand. A few years ago a certain city had a larger number of cases of typhoid than usual scattered about the city but concentrated somewhat in two localities. Public health officials were called upon to trace the cause. Suspicion was directed at the city water, and it took a lot of earnest, hard work on the part of the filtration superintendent to keep the blame from being saddled on the plant and the future development of the city ruined for many years. What was the defense of the superintendent? His daily records of plant tests for bacterial contamination! He had other records of operation, but these records were his Rock of Gibraltar which could not be contradicted. Had he kept no records, where would he have been? It is an absolute obligation the plant official must meet when he stands on trial—as to whether his plant is the cause of a water-borne epidemic. His records are his Verdun.

Not only will the records show the costs and uphold the good reputation of the official, but they will indicate methods of improving operation and changes in raw water-supply that will necessitate changes in operation. I know of one filter plant that has a fairly soft, highly colored water to handle during the wet periods of the year, and a hard non-colored water during the dry periods. Daily examinations of quantity and quality of microscopic organisms will lead to the prevention of tastes and odors, for the records will indicate that as these organisms reach certain concentrations, complaints become numerous from the consumers. The records are a guide as to what to look forward to. Utilities such as water-works must look ahead, plan and be prepared for all contingencies. Long, hot, dry spells and droughts will cause increases in daily consumption—can the city be supplied with the present clear-water storage? There is a relation between the amount of clear-water storage and rated filter capacity, but only with records of average daily consumption over a long period of years can this be determined. Other demands such as fire protection, distribution layouts, etc., enter, but the basic consideration is the daily consumption demand on the plant. Should the clear-water storage be 75 per cent of the rated filter capacity or five times the rated capacity? Only the daily consumption records can answer. Records will indicate the necessity of change of operating procedure from day to day, and, accumulating over a period of years, will be sign-posts and indicators governing the design of extensions to the plant.

Suppose you are operating a privately owned system, and a political faction gets into control that decides to take over the utility and operate it publicly. The courts are your only hope of retaining the plant, and the court calls for records of many years previous as to costs, expenditures for capital investment, quality of

water furnished, and a thousand-and-one other questions that only a legal mind can evolve. Can you put your fingers on records to show what you have been doing?

Equipment Necessary to Make Records

If you should decide to have a complete record of the water plant, sit down with the superintendent and list the records necessary, and you will be astonished to know that he has not the equipment to make the tests, etc., needed to get these records, even though the plant is a modern one. Just a few questions will illustrate. How much raw water is handled? The answer is the raw water meter or weir measurements. Have you either? What were weather conditions, characteristics of the raw water, turbidity color, odor? What was the storage on hand in the raw-water basin today? The precipitation at the plant and evaporation from the raw-water storage basin?

How much lime, soda ash, caustic soda, aluminium sulphate acid, and similar coagulating chemicals are being used, either grains per gallon, parts per million, or pounds per day. Have you the scales, meters, or weirs for measuring each?

How long did Number 1 filter run before being washed, and how much water was used to wash it? Are there any gages on the wash-water lines or meters on the pumps? Is the time on and off kept for each filter? Loss-of-head gages or rate-of-flow indicators? Did you filter to waste, and, if so, how many minutes or gallons? How much chlorine was used today and how much excess by orthotolidine was carried? What was the scale weight at the close of day? What was the CO_2, alkalinity, hardness, pH., color, floc condition of waters on top of filter, and the same for the final water, excepting of course floc condition? How much clear-water storage was on hand? How much clear water was pumped to town? Got a meter on the line? What "bug" conditions were prevalent in raw water, settled water, filtered water, sterilized water? How about algae growths in raw water and in final water? Is there a microscope in the plant? How much copper sulphate was used?

Records and more records are needed. Where would our knowledge of filtration, testing, etc., be today if an operator here and one there had not put his observations down in writing and someone compiled all these records, concentrated them, and discovered the truths we know today? Public service corporations, large and small, keep voluminous records; a city operating a public utility should do likewise. The responsibility rests upon the official in charge. Can you produce the evidence that the job has been handled in a workman-like manner? Can you produce the records?

ACKNOWLEDGMENT.—From a paper read before the Southeastern Water and Light Association.

Tractor Relieves Water Shortage

IN late August of last year Sellersville Borough, Pa., was faced with an alarming crisis due to the shortage of water. As in the case of many other communities, late summer droughts had made serious inroads on the available supply. Even though two pumps which had supplied the community with water for many years were in operation, the demand of the citizens gradually exceeded the supply. The water in the reservoir grew steadily lower. Obviously, the situation required immediate action.

THIS FORDSON WITH ITS BARTON PUMP SUPPLIED WATER TO SELLERSVILLE BOROUGH FOR NEARLY TWO MONTHS, PUMPING WATER A DISTANCE OF 7,000 FEET AT THE RATE OF 400 GALLONS A MINUTE

H. C. Cressman, Superintendent of the Perkasie Water Company, when appealed to for help, sent over his Fordson tractor with a portable pump. Connection was made with the main borough feed lines during the night, and the tractor was started pumping the following morning.

By noon the water-mains were full again; and after forty-eight hours of continuous pumping there was a foot of water in the reservoir gained over the consumption of the people. After pumping for three days and three nights, another foot was gained.

The tractor and pump made an excellent showing, running continuously day and night for a total of 1,000 hours. It continued running merrily, doing a job that could not have been done in any other way without an expenditure of many thousands of dollars.

IN APRIL, 1925

IN JUNE, 1925

IN JUNE, 1926, ONE YEAR AFTER—HARMON FIELD, WAPAKONETA, OHIO
First award in 1925 Honorarium Contest for Harmon Fields

Helping Those Who Help Themselves to Get Playgrounds

The Harmon Foundation Again Offers Assistance to Small Communities in Play Land Purchase

By Mary Beattie Brady
Acting Director, Harmon Foundation, New York

"WHAT'S the matter, Sonny?" The stranger addressed a ragged little urchin who sat dolefully on the bare stone steps of a city church. "Ain't got no place to play. Gee! it's terrible. First the copper chases you off the grass in the park, for that is for people to look at. Then he chases you off the street, 'cause kids ain't allowed to play ball nor nothing else in the street. I ain't got no carfare to go to the real playground. What's the use of being a boy, if you ain't got no place to play?"

This might have been the sorrowing philosophy of hundreds of thousands of American boys and girls in large cities, small cities and big overgrown towns through the length and breadth of the land. Spirits high, fine citizenship in a pliable condition for the right kind of molding, but none but makeshift, temporary, and inadequate space for perfectly normal and necessary group recreation.

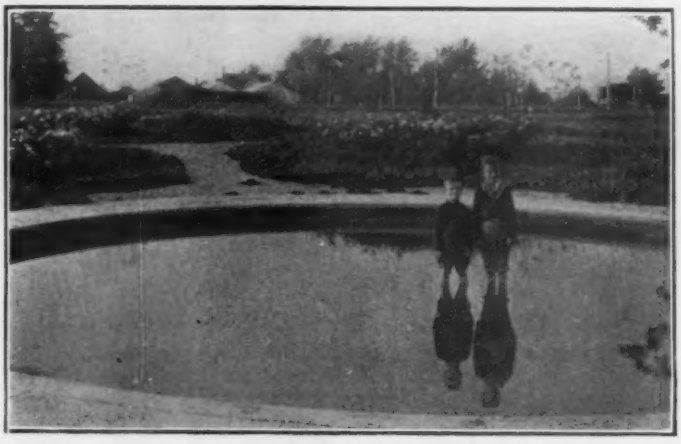
City planning has done much and is rapidly doing more to place the sectional playground in its strategic situation in the scheme of a well-organized community; but the process is slow and must go through the endless mill of

education and political diplomacy. In the meantime land in rapidly growing communities is being absorbed for business and residential purposes, land costs are becoming prohibitive for recreation purposes, and the situation in which New York and many other of our leading cities find themselves today is in grave danger of being repeated on a proportionate scale in equally congested but less extensive manufacturing centers.

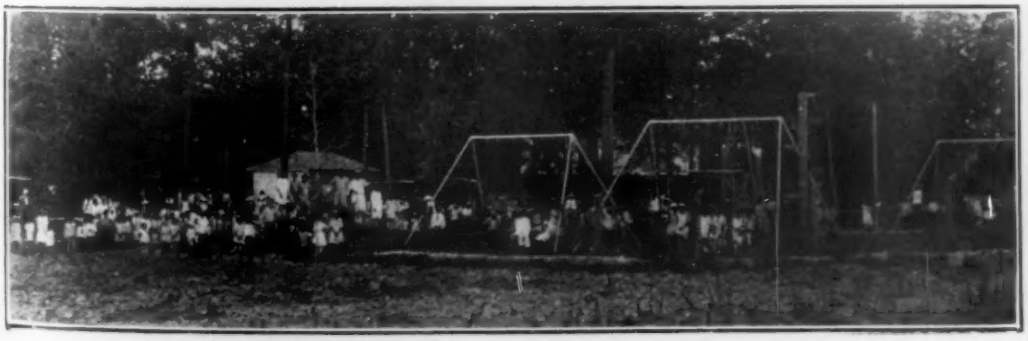
Through the Division of Playgrounds which was established four years ago, the Harmon Foundation has been granting financial assistance to small, rapidly growing towns and cities for final payment in the purchase of land that is deeded in perpetuity for recreation purposes. Gradually there is developing in such communities a permanent playground movement. Seventy-seven playfields known as Harmon Field have now been established and are forming, on the basis of their worth-while development, contagious germs of the permanent playground idea. There is at least one of these affiliated playfields in all but nine states. Rivalry of a friendly type is brought about through the annual honorariums which are distributed to the fields showing the best development during the year, and also those that have been most successful in spreading interest in the permanent playground plan.

Awards for accomplishments

HARMON FIELD SPONSORED BY THE KIWANIS CLUB, STROUDSBURG, PA.



WADING POOL, HARMON FIELD, PAULING, OHIO
Taken June 17, 1926, showing the peonies in bloom, and stone in distance which holds name plate



HARMON FIELD FOR COLORED CHILDREN, ORANGEBURG, S. C.

between March 1, 1925, and March 1, 1926, have recently been distributed to thirty-two communities, totaling $8,600. Prizes ranged from $1,000 to $50. In some cases the awards were made to individuals because of the personal service rendered the permanent playground cause greatly in excess of group effort. Miss Ethel C. Bachman, a teacher in St. Petersburg, Fla., and R. L. Whitcomb, an editor, of Martin, Tenn., each were awarded $1,000 for their efforts, while Wapakoneta, Ohio, also won as a community $1,000 for the greatest improvement within a year, brought about by almost 100 per cent support by men, women, and children.

$50,000 Offered This Year

During 1926 the Harmon Foundation offers to expend $50,000 in contributions toward the final purchase of land which will be dedicated in perpetuity for recreation uses. Each appropriation may not be in excess of $1,000. Where the total cost of the land is $2,000 or less, the assistance will be limited to 50 per cent of the purchase price. To be eligible for consideration, a town must have at least 2,500 population at the present time and show a growth of 25 per cent or more since 1910. A tract of land should be at least two acres in extent.

Experience has shown that it is advisable to make certain requirements regarding development and use in order to insure the maximum service of the limited funds which the Foundation is able to devote to this purpose. Each contribution is made subject to return at the end of five years with interest, if reasonable standards of development and maintenance have not been upheld. In this way appropriations that have not been properly used may become available for other deserving communities alert to playground needs.

Chambers of commerce, school boards, clubs, park commissions—any local groups endeavoring to arouse activity in securing permanent play space—may secure detailed information regarding plans for playground assistance by writing to The Division of Playgrounds, Harmon Foundation, 140 Nassau Street, New York.

Important Subjects and Speakers for Thirteenth National Recreation Congress

RURAL recreation problems, the use of school property for recreation purposes, program making, park recreation, nature study in the recreation program, securing play space in new real estate developments, swimming pools, athletics and recreation for women and girls, playground beautification, and children's gardens will be some of the principal topics at the thirteenth National Recreation Congress to be held under the auspices of the Playground and Recreation Association of America in Atlantic City, October 18-22.

A program of special classes in games, community drama, social recreation and old American dances, and a consultation service on these activities, will be a feature of the program.

Bishop William T. Manning of New York, Governor A. Harry Moore of New Jersey and Governor John G. Winant of New Hampshire, Mrs. A. H. Reeve, President of the National Congress of Parents and Teachers, Joseph Lee of Boston, "father of the playground movement," Dr. John H. Finley, Associate Editor of the *New York Times*, Mrs. Jane Deeter Rippin, Director of the Girl Scouts, Dr. C. B. Smith, of the U. S. Department of Agriculture, Dr. William Burdick, Director of the Public Athletic League in Baltimore, Charles H. English, Supervisor of the Chicago Bureau of Recreation, Anne Carol Moore, of the New York Public Library, Professor William G. Vinal, of the New York State College of Forestry, C. E. Brewer, Commissioner of Recreation in Detroit, Professor Elmer D. Mitchell, of the University of Michigan, Professor Harold D. Myers, of the University of North Carolina, Frederick P. Keppell, President of the Carnegie Corporation, and Mrs. Chester Geppert Marsh, Superintendent of Recreation for Westchester County, are among the principal speakers.

"Wild Youth" Is Not So Wild

Urging the need of national statistics on juvenile delinquency, the Children's Bureau made public recently a statement summarizing what official figures there are on this subject. These show, contrary to widely published statements, a downward trend in juvenile delinquency rates in large cities. Census reports covering the whole country indicate also, the Bureau found, "no significant increase" in the number of children committed to institutions for the more serious offenses—homicide, robbery, burglary.

Of the 14 cities—New York, Boston, Buffalo, Chicago, New Orleans, Providence, Richmond, St. Louis, Washington, D. C., Rochester, Detroit, Minneapolis, Philadelphia, and Seattle, for which the Children's Bureau was able to secure juvenile court statistics, decreased delinquency rates were found in the first-named nine cities.

How Shallow Wells Are Developed

By John Oliphant

As the demand of our American civilization for the amenities of life and the industrial requirements constantly become more exacting, we are confronted with a problem of increasing difficulty to furnish a supply of potable water. The surface supply is gradually diminishing and becoming more contaminated, and engineers are turning their attention to the development of the underground supply, especially in comparatively shallow sand and gravel formations.

The force available for getting water into a well of this class is the head, due to the difference between the static level in the water strata outside the wells, and the pumping level in the wells, minus friction due to the strata and screen. Therefore, the more this friction can be reduced, the greater will be the flow, providing, of course, that an abundance of water is available.

Many sands, especially quicksand, are very reluctant to give up the water they hold, and in order to secure an additional yield, it becomes necessary to present an increased surface and an unrestricted passage into the well. This may be done by forming a gravel wall around the outside of the screen and using a screen that will freely admit the sand. This gravel wall must be kept free from the accumulation of sand during continued pumping.

The gravel wall, when properly placed, forms an effective barrier around a metal screen and greatly increases the flow from the sand into the well, but this inflow of water carries with it a certain amount of sand that either settles in the gravel and reduces the inflow, settles in the well and partially fills the inside of the screen, or cuts out the mechanically operated deep-well pump. All these troubles are eliminated by the use of an air-made and operated well.

By this method the gravel is placed primarily at the bottom of the sand strata and gradually replaces the sand as it is removed, obviating the risk of cave-ins from the overlying strata. Second, the gravel is forced back by pressure and is thoroughly packed. Third, whatever sand comes into the gravel wall or wells on account of pumping is removed by the operation of a valve in the discharge of the air-lift, and the sand carried in with continued pumping does not affect the operation of the air-lift, because the water does not come in contact with any moving part when handled by this method. Fourth, owing to the peculiar construction of the air-made wells, a reservoir of gravel is maintained in connection with the sand strata, and as sand is removed by continued pumping or back-blowing, the gravel automatically takes its place.

Fig. 1, in Plate 1, shows the outside casing or sheath tube in place, reaching to the bottom of the water-bearing strata and set into the rock, clay, or shale below, effectively shutting off the sand and water during the construction

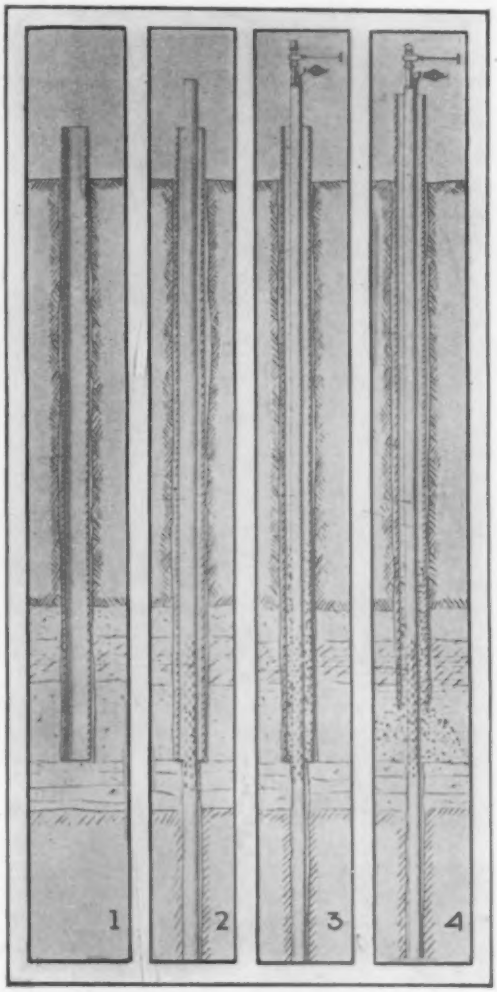


PLATE 1.—METHOD OF DEVELOPING A SHALLOW WELL

1. Outside casing or sheath tube in place, reaching to the bottom of the water-bearing strata. 2. Drilling being continued through the sheath tube to secure additional submergence for the use of air-lift pump. 3. Air-lift pump installed with a well top sealing the casing. 4. Jacking-out the sheath tube

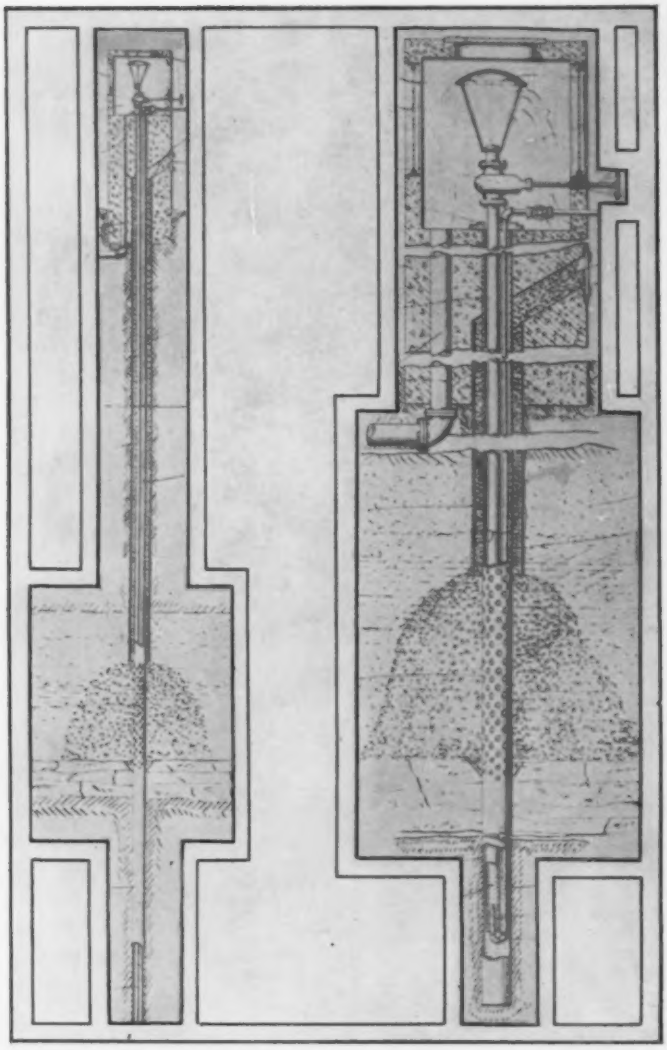


PLATE 2.—COMPLETED WELL, SHOWING GRAVEL MAGAZINE IN THE CEMENT HEAD, FORMING A CONNECTION BETWEEN THE SHEATH TUBE AND THE WELL CASING

of the well. Drilling is then continued through the sheath tube, as shown in Fig. 2, where it is necessary to secure additional submergence for the more economical operation of the air-lift, and the well casing is installed, with a perforated screen opposite the water strata, whose perforations are of such a size as to freely admit the sand but hold out the gravel. Within the well casing is installed an air-lift pump with a well top sealing the top of the well casing, a valve in the air line, and a valve in the discharge, as shown in Figs. 3 and 4.

Screened gravel of a size to pass freely between the well casing and the sheath tube, but not through the screen perforations, is built up around the screen to a few feet above the perforations, and pumping by means of the air-lift is started and continued as long as sand is secured or the gravel between the sheath tube and well casing drops.

Then, by means of jacks, the sheath tube is raised a little at a time, and by back-blowing, accomplished by closing the valve in the discharge, which forces the water in the well casing back through the screen and into the sand or gravel.

A sudden opening of the valve on the discharge causes an inrush of the water into the well, which carries the floating sand with it and deposits it at the surface. The process is continued until the sheath tube has been raised to near the top of the water-bearing strata and all of the gravel placed.

Plate 2 shows a completed well with a gravel magazine in the cement head, forming a connection between the sheath tube and the well casing. By this means, as the well with use continues to make sand, the gravel gradually takes its place, and back-blowing can be accomplished at any time by the manipulation of the valve in the discharge.

Should the gravel between the sheath tube and casing become bridged or clogged, it can be loosened up by leaving the discharge valve closed. There are several reasons why air-made and operated wells have been found more economical than other methods of pumping under these conditions: First, the greater part of the gravel is placed at the bottom of the strata from which point the greatest amount of water is secured. Second, there is no deterioration due to the handling of sand, consequently no reduction in efficiency. Third, the gravel wall is kept free from sand, and the capacity of the well tends to increase with use rather than to diminish. Fourth, groups of wells may be operated from the central power-plant and the wearing of parts and the expense and time lost by replacing may be avoided. Fifth, the system is dependable.

ACKNOWLEDGMENT.—From a paper read before the Illinois Section, American Water Works Association.

Manual versus Automatic Control of Signals on State Highways

IN the August number of this magazine there was published a statement by W. G. Sloan, State Highway Engineer of New Jersey, defending the policy of the State Highway Commission in refusing to approve, on any state highway, the installation maintenance or use of any traffic regulating device which is automatically controlled or manually controlled from a point so remote that the person operating the device is not able to see the traffic condition at the point or points affected.

As explained in a foot-note on page 253 of the August number, traffic devices on state highways were definitely removed from control by municipalities in New Jersey by act of the 1926 legislature. Nevertheless, officials of municipalities traversed by state highways naturally have opinions of their own in this matter of manual versus automatic control of signals. Letters to THE AMERICAN CITY from the Mayors of three such municipalities are here published:

City of Bridgeton, N. J.

I have already publicly expressed my humble opinion of the action of the State Highway Commission regarding the operation of mechanically operated traffic lights in the city of Bridgeton. I gladly do it again for THE AMERICAN CITY.

The traffic light system as operated in our city of nearly 20,000 population is the greatest safety regulation device that we have ever had. Its operation is a positive safeguard to prevent accident to pedestrians, motor and vehicular traffic. Surely any law-abiding citizen who has any favorable and unprejudiced regard for the safety and good of the traveling public will not object to the system as operated.

We believe in honest, safe home rule government in this matter. Anyone passing through our city a distance of three miles could not possibly be detained in his journey more than three minutes if he were stopped by every signal light. Without the use of the signal light system, he might be detained by accident for several hours.

Three elements enter into the signal light system—pedestrian, motor, and vehicular traffic. State Highway Engineer Sloan deals only with the motor traffic. I wonder if he cares only for one with entire exclusion of the other two. The signal lights provide safety for children and older people and vehicles as well as motor cars.

The fact that these are "days of heavy and increasing traffic" is the just reason why the traffic should be cautiously and safely regulated. The signal lights do regulate, do divide traffic, do give equal rights both ways. Wild and mad and dangerous driving of motor vehicles in these days of heavy and increasing traffic needs such regulation and instruction as the signal lights impart. The signal lights in Bridgeton are placed only at intersections where the travel seems alike both ways.

I am in favor of the retention of the traffic light system as operated in Bridgeton. But, if the Highway Commission would replace the lights here and pay the cost of traffic officers, there would be no objection upon the part of the citizenry.

Before the installation of our lights, accidents at intersections were numerous and sometimes serious, but now they are very few and none have been serious.

If "highways are roads which every citizen has a right to use on equal terms," then every citizen has a right to expect equal rights both ways. Automatic signal traffic lights give all equal rights all ways.

SAMUEL C. JOHNSON, Mayor.

Gloucester City, N. J.

In regard to the control of traffic on state highways within municipal limits, I am of the opinion that the local authorities are best able to judge what is necessary to protect the public.

In Gloucester City the lights are regulated in such a manner that the cross-town streets have thirty seconds and the through traffic seventy seconds. We have had no fatal accidents since our lights have been installed, and but few minor accidents on the main thoroughfares in this city, and no congestion of traffic.

DAVID M. ANDERSON, Mayor.

Rahway, N. J.

Rahway is not a rich municipality, yet I believe we are taxed far beyond our obligation, or ability to pay, toward the handling of traffic passing through this city.

Lincoln Highway as it passes through Rahway has a traffic which I believe is second to that of no highway in the country. An accurate count shows that 25,382 automobiles passed a certain point in Rahway during the period of 16 hours. That was not an exceptional day. Similar congestion occurs one or more days every week—particularly in the summer—and is approximated every day in the year.

Near our western city line, Route No. 1, leading to Philadelphia, and Route No. 4, leading to the Jersey Coast, meet. We get the entire traffic from both. Should Rahway therefore control the traffic passing through the city? No! Nor should any other municipality along a like highway fix its own rules, system of signals, etc. Not only should there be state control, but there should be, and eventually will be, national control of all highways which are essentially not only state but interstate highways, such as the Lincoln.

As accurate and intelligent a count as possible shows that over 80 per cent of the traffic through Rahway on the Lincoln Highway is through traffic. It sails through almost like the tail of a comet—not even stopping for a drink of water (and we have the best). If the motorists would all stop and say "Howdy?", we would conduct them to our municipal tourist camp and swimming pool. There are many who take advantage of this, but we urge *all* to stop.

It costs us $12,000 a year, independent of hospital and other charitable expenses, to efficiently patrol the Lincoln Highway in Rahway. From the fines imposed on those who violate the *state* laws there is received about $10,000 a year. We pay the Police Court expenses incident to all this, and then, not graciously but with reluctance, turn fines collected over to the State Highways Commission.

What the people of Rahway want, and what we believe every other like municipality is entitled to, is that the State Highway Commission pay the same proportion of the necessary expense of policing and otherwise handling the through traffic as they do in building and maintaining the highway itself. Instead of this, the state expects the city to pay these costs.

The Pennsylvania Railroad having bought its right of way, laid its tracks, and now and then putting in a new tie or rail, could with just as much consistency demand that the city of Rahway install and maintain the railroad signal system, that we police the entire course of the railroad through the city, and in all ways protect and guarantee the safe passage through Rahway of the millions of passengers whom they carry.

We have installed Horni Signals on the Lincoln Highway at great cost, and I believe we were the first municipality in the state of New Jersey to do so. Nothwithstanding that fact, I believe that to have the traffic on such a highway entirely under the control of separate local bodies would be going backwards and would bring about a state of chaos.

The Rahway Common Council, acting upon a suggestion of the Mayor, has appointed a citizens' committee known as the Rahway Safety Council, for the purpose of conferring with like bodies from other municipalities to study this subject from every possible angle and then to cooperate with other city and state authorities with the hope that some plan may be devised whereby the greatest possible degree of safety will be assured to all traffic, whether local, state, or interstate, and that the expense may be as equitably distributed as possible.

Let our state highways be governed by a state body.

Let each municipality bear its just share of the expense.

Let there be—in so far as possible—an equal bearing of burdens and sharing of subsequent benefits.

THOMAS A. FYFEE, Mayor.

First Collegiate Course in Accident Prevention

TO meet the demand for trained leaders in safety work, New York University, with the cooperation of the American Museum of Safety, offers this fall the first collegiate course in accident prevention. In announcing this significant development of the safety movement, Arthur Williams, President of the American Museum of Safety, said:

"The fact that most accidents are preventable was demonstrated eighteen years ago. The methods of preventing accidents, both in industry and in communities, have become thoroughly standardized, and detailed information concerning these methods—the combined experience of hundreds of companies and communities which have succeeded in reducing accidents from 25 to 75 per cent—is available to anyone. The need now is for men and women with the qualities of leaders and organizers, and with the training of safety engineers and public safety directors such as will be offered by New York University."

The course will be given under the direction of C. W. Price, Vice-President of the Elliott Service Company, formerly General Manager of the National Safety Council. Other instructors in the course will be Dr. E. George Payne, Professor of Educational Sociology at New York University; W. Graham Cole, director of safety, Metropolitan Life Insurance Company; and Louis Resnick of the New York Edison Company.

Setback Lines for Street Widening Urged by Chamber of Commerce

THE Directors of the Chamber of Commerce of Hamilton, Canada, have written to the City Council regarding the question of street widening as follows:

"That the Board of Directors of the Hamilton Chamber of Commerce desire to place themselves on record with regard to the widening of streets in Hamilton, especially within the business section, and to urge that, before a permit is granted for the erection of any building of importance upon any street which it may be considered desirable to widen, either immediately or at such time as the growth of the city renders such action necessary, the Council undertake careful investigation with a view to ascertaining the expense of such widening and also arranging with the owners of such property so that any building of this nature shall be erected sufficiently far back from the street line to allow of necessary widening at a time when it becomes necessary and desirable and at the least possible amount of expense to the public."

In its *Official Bulletin* for August, 1926, the Hamilton Chamber of Commerce urges that the city establish a comprehensive plan for street widening which can be adopted as a definite policy, so that gradually the widening of city streets can be undertaken economically. It is understood that under an existing law arrangements can be made with property owners so that a street line can be established, enabling the city at the least possible expense to widen streets which may not require it at present, but which, with the expected growth of this city, are bound to need it later on.

The signal lights in Bridgeton are placed only at

this, but we urge *all* to stop.

Forward Steps

Reported by Municipal Officials, Chamber of Commerce Executives and Others

Two Villages Cooperate in Effective Beautification Campaign

OAK PARK, ILL.—The Villages Beautiful Committee of Oak Park and River Forest was organized in the spring of this year for the purpose of promoting those things which would improve and beautify the two villages, covering not only public improvements but also the premises of the individual property owner.

In connection with the work of this committee one thousand lilac bushes were given away by one of the members of the committee. These bushes were distributed to the children in the seventh and eighth grades of the public schools, the children being given special instructions how to plant them, by members of the committee. In addition to the lilac bushes, perennials and seeds were given out.

In discussing the opportunities for beautifying and improving the villages, it developed that a large percentage of the mileage of the alleys in both communities was paved and that perhaps some plan could be worked out whereby the premises

Notice to Owners of Property Adjoining Recently Paved Alleys in Oak Park and River Forest

The improvement of the alley abutting your property with a concrete pavement is now completed. Under the terms of a village ordinance, paved alleys are officially called lanes. The village authorities request your cooperation and assistance in maintaining this lane in accordance with the following regulations:

HOUSEHOLD WASTE: Household waste or rubbish of any kind must be kept inside of your lot in proper receptacles. Copy of regulations covering disposal of household waste is enclosed. Do not put waste material of any kind in lanes.

OBSTRUCTIONS: No building, fence, gate, garage door or other structure shall project into or over any alley or lane. If your back gate swings outward over the pavement, it should be rehung so as to swing in onto your own property.

TRAFFIC: The speed limit for vehicles in alleys and lanes is ten miles per hour. All vehicles must come to a full stop before entering a street from an alley or lane. Vehicles should not be parked so as to obstruct traffic.

GARAGES: When garages are built, it is necessary that they be so constructed that when the doors open they will not project over the pavement. It is suggested that garages be placed four feet from the alley line.

HOUSE NUMBERS: A village ordinance now requires that numbers be placed on all buildings. It is suggested that you comply with this regulation for the rear of your property and put a house number either on your back gate or garage. Lanes are used almost as much as streets by delivery men.

A well-kept lane or alley adds greatly to the appearance of your property. It is suggested that old and unsightly wooden fences be removed as conditions warrant, and replaced with wire or picket fences. Metal or concrete receptacles for garbage and other household waste should be procured and placed close to the back gate.

Compliance with the above regulations assists the Street Department in the prompt removal of all household waste.

DUDLEY C. MEYERS,
Commissioner of Public Works.

TOP AND MIDDLE VIEWS SHOW, RESPECTIVELY, THE BLOCKS IN OAK PARK AND RIVER FOREST HAVING BEST-APPEARING LANES. AT BOTTOM, REAR PART OF PRIZE-WINNING INDIVIDUAL PREMISES

adjoining the alleys could be improved and made as attractive as the front yards. In Oak Park there are 48.27 miles of alleys, of which 75 per cent are paved with concrete; and in River Forest there are 11.5 miles of alleys, of which 82.6 per cent are paved with concrete.

The village of Oak Park has an ordinance which specifies that after an alley is paved it shall be known as a "lane."

One of the members of the Committee suggested that an "Alley Parade" be given in order to inspect the alleys and lanes and also to get an idea of the improvement and development of adjoining premises. The Committee approved of this idea, and an Alley Parade was held on the afternoon of Saturday, May 22.

A route was mapped out which covered all parts of the two villages, and the tour of the alleys was made by a procession of more than a hundred automobiles. The marshal of the parade was the Commissioner of Public Works of the village of Oak Park, and representatives of the various clubs, improvement associations, and business men's organizations rode in other cars. There were also a number of individual cars.

A subcommittee, consisting of five members of the Villages Beautiful Committee, was appointed to select the best-looking lane in a block in each village, and the best-looking individual rear yard, and to choose the best individual representation in the parade and the best organization representation in the parade. The judges made notes as they went over the route and then went back later to make a more careful inspection of the blocks and the individual premises that had been noted during the course of the trip.

The parade aroused a great deal of interests; property owners cleaned up the alleys and lanes adjoining their premises and made their back yards as inviting as possible. In a number of cases the individual home owner was at his back gate to greet the parade as it went by.

The parade showed that the rear yards of homes are often more interesting than the front yards. In most cases the yards were laid out with lawn spaces, flower-beds and suitable planting of trees and shrubs. In many instances the board fences had been removed and replaced with open wire fences, in some cases with hedges and suitable tree planting.

The Chairman of the Villages Beautiful Committee is Gustaf A. Lindberg, Superintendent of Parks.

DUDLEY C. MEYERS,
Commissioner of Public Works of Oak Park.

Chamber of Commerce Gives Road Aid to a County in Another State

BLUEFIELD, W. VA.—The city limits of Bluefield extend right to the line which separates West Virginia from the Old Dominion. One of our most important outlets to five counties of southwest Virginia is through a small Virginia county with a total assessed value of only two million dollars. The road through that county had not been improved in 40 years, and two county bond issues had failed to pass. This unfortunate situation created a trade barrier highly inimical to Bluefield's interests.

The Robertson act in Virginia permitted a county to pass a bond issue—if acceptable to the state—wherein the county paid the interest on the bonds for a four-year period, after which the state assumed the principal and interest. Bluefield proposed to the adjoining county that if it would pass a bond issue under this Robertson act, Bluefield would contribute the first year's interest on the bonds, leaving only three years' interest for the county to pay.

Bluefield's proposal was made the battle-cry in the bond issue campaign, and the bonds carried. Bluefield has already raised by popular subscription and paid in full the $7,500 interest for the first year. The road is more than half built. The new system of Federal numbered highways adopted this route after it was assured the road would be improved. The state of Virginia, by special act of the Assembly last January, incorporated the road into the State Highway System. Shortly after the bond election, the Robertson act was repealed, making our project the very last to "get in under the wire" and benefit by the unusually liberal terms of the act.

Bluefield's farsightedness advanced the improvement of the road six to ten years, in addition to winning a national routing for it. It opens up the trade of five counties to this city. A croaker here and there protested our aiding in road construction in another state, but the investment will pay for itself many times over every year.

CONRAD BREVICK,
Secretary-Manager, Bluefield Chamber of Commerce.

"If I Had a Year to Work for Tulsa"

TULSA, OKLA.—An unusual means of arousing interest in the possibilities of a Chamber of Commerce program was adopted by the Publicity Committee of the Tulsa Chamber of Commerce when it caused to be conducted through the medium of *The Tulsa Spirit*, official publication, an essay contest the purpose of which was to develop new lines of endeavor for the organization.

Four prizes were offered for the best four articles on the topic, "If I Had a Year to Work for Tulsa ———." Each author was allowed to tell in not more than 400 words just how he would devote his 365 days if he had the time available to work for the advancement of his city.

The contest was open to anyone of voting age, there being no further restrictions as to entry, and the usual minor rules to fit the situation prevailed.

Considerable interest was developed among the citizenship of Tulsa in all walks of life, and this in spite of the fact that the contest received little advertising outside of the official publication. The newspapers printed several small stories and gave adequate space to the winning articles. The prizes were not elaborate, only $100 being appropriated for the purpose, but they were large enough to attract thinking citizens who had not previously devoted considerable thought and study to civic problems. This, coupled with the opportunity for public expression of personal opinions, resulted in the submitting of approximately 150 articles.

The contest served the purpose of developing new ideas for the improvement of Tulsa, and the prize money was considered well spent, since it accomplished the further purpose of penetrating

with *The Tulsa Spirit* homes and offices that had previously not been reached, and of further popularizing the official publication with a class of readers that a chamber of commerce is anxious to interest.

B. G. CREAGER,
Publicity Secretary, Tulsa Chamber of Commerce.

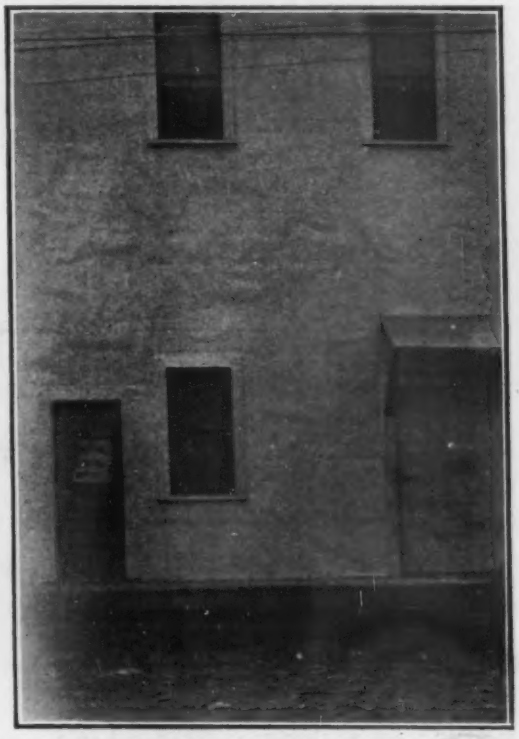
Newspaper Publicity Aids Elimination of Fire Hazards

CHELSEA, MASS.—This city, which had a fire loss of approximately $16,000,000 in 1908, has recently been taking steps to eliminate some of its fire hazard conditions. Chelsea is headquarters for a large rag industry. Waste material of all kinds is collected, sorted, and stored in one section of the city. Much of this work has been carried on in wooden buildings without sprinklers and under exterior and interior conditions that presented possibilities of another conflagration. Large quantities of inflammable material were allowed to accumulate in yards and in the rear of buildings. Many insurance companies canceled their risks in that district, and others would not write any business in the city.

CONDITIONS IN CHELSEA WHEN AGITATION AGAINST FIRE HAZARDS BEGAN

Percy Bugbee, field engineer for the National Fire Protection Association, made several efforts to enlist interest in a movement to eliminate existing hazards, but without success. He then presented the conditions to the editor of the *Chelsea Evening Record* and they visited the district together. Mr. Bugbee pointed out the conditions to which insurance companies objected and what it would be necessary to do before the confidence of the insurance people would be restored. Later, at the request of the editor, he wrote out a statement for publication. The conditions were plainly stated and the absolute necessity for action was set forth. The article was given especial prominence and its publication was followed, day after day, with attacks upon conditions and the laxity of officials, and with statements as to the responsibility of property owners to themselves and to the city. Black type was used freely in the effort to arouse a public sentiment in favor of improvement. The agitation continued for some time and pictures of conditions were printed in connection with these special articles. The Mayor of the city appointed a commission consisting of the editor of the *Record* as chairman, the Chief of the Fire Department, the Inspector of Buildings, an architect and an alderman, to investigate conditions and to make recommendations for improvement.

The commission studied the problem, consulted with property owners in the rag-shop district, with representatives of insurance companies, Mr. Bugbee of the National Fire Protection Association, and State Fire Marshal Neal. Meetings of the commission were held until its report was ready to be submitted to the Mayor and Board of Aldermen. Then it was passed upon by the City Solicitor, who made several suggestions as to the wording of certain recommendations. The report was then sent to the Mayor and Aldermen. The city ordinances are in process of revision and the recommendations are to be made a part of the new ordinances. Meantime, the Chief of the Fire Department ordered a general cleaning-up of fire hazard conditions and, in view of the agitation, it was easier to get property owners to comply with his requests. The Inspector of Buildings was instrumental in making a marked change for the better. Many old buildings were given metal coverings, dilapidated buildings were torn down, and brick structures are in some cases taking their places. Sprinklers have



IMPROVED CONDITIONS IN CHELSEA TODAY

been installed in a number of rag-shop buildings. In fact, many rag-shop dealers now have modern buildings, with up-to-date equipment.

As a result of what has been done, the number of fires in the rag-shop district has been greatly reduced. In 1923, there were 110 calls from that section of the city for the Fire Department. In 1925, there were 36. The city's total fire loss in 1923 was $498,460. In 1925, it was $213,568, showing a reduction of $284,892.

Property owners find it much easier to get insurance, and several companies that withdrew from the district a few years ago are now accepting risks there. An engineer representing a group of insurance companies states that a recent inspection by him shows conditions to be better than they have been for five years. As much more remains to be done, the agitation for still better conditions will continue.

S. H. ROBIE.

Eliminating the Fire Hazard of Wooden Shingles

NEW BRAUNFELS, TEXAS.—This City of Metal Roofs, located in the heart of Texas, is populated by about 7,000 people of German abstraction, almost 90 per cent of whom are home owners. Back in 1895 our city realized the fire hazard of wood shingle roofs and passed an ordinance prohibiting the use of wood shingles or other combustible material for roofs within certain restricted areas. This prohibition was later extended by amended ordinance to include the entire city.

The beneficial results can readily be seen when we compare our fire record, of not having had a roof fire in twenty years, with that of other cities not having this protection. Numerous cases are recorded of cities that were almost destroyed by fire due to shingle roofs. In Texas, for example, Fort Worth, 1909, an $800,000 loss; Houston, 1912, a $450,000 loss; Paris, 1916, a $11,000,000 loss. Practically 90 per cent of the buildings involved in these fires had shingle roofs.

Metal roofs have another important advantage. In numerous cases, after a fire has weakened the structure, the roof caves in, forming a blanket over the fire, keeping it from spreading, and thus making it an easy matter to confine the fire to the original building.

Our total fire losses for the past five years have been only $7,555 on $3,000,000 insurance, not including mutual insurance, which is carried by practically all of our large manufacturing plants. We have never had any difficulty in enforcing this ordinance; when a property owner can be shown the actual saving to himself and the entire city, there is never any trouble.

Starting with a key rate of 64 cents, we have gradually lowered this by eliminating old shingle roofs, increasing the efficiency of the fire department, and enlarging and extending water-mains, until now our city has a rate of 15 cents. This is the lowest rate of any city in the state but one, our neighbor San Antonio, which has a 14 cent rate.

WALTER A. STAATS,
Chief, New Braunfels Fire Department.

Chamber of Commerce Sponsors Interchange of Concerts

SCOTTSBLUFF, NEBR.—A highly successful musical event was conducted by the community bands of Scottsbluff and Mitchell, Nebr., in the latter part of June, 1926. It was an interchange of band concerts arranged by the Scottsbluff Chamber of Commerce, and at each program 3,000 or more people were in attendance.

Obligated by a municipal tax levy toward their support, both band organizations give free concerts each week. These are on different nights, and with the visiting band furnishing the concert in place of the home band, on the regular night, members of each organization were permitted to be entertained by their fellow-community musicians.

The Mitchell band is the oldest band in the western part of Nebraska, having been organized by J. E. Keebaugh in 1906. He is still the director. It has remained active during the twenty-year period and has established a prestige as a popular and valuable community asset. Its membership is maintained at nearly twenty-five, some

PARTIAL VIEW OF NEW BRAUNFELS, TEXAS, SHOWING EXTENT TO WHICH METAL ROOFS ARE USED

THE MUNICIPAL BAND OF SCOTTSBLUFF, NEBR.

of whom were among the charter members of the organization.

The Scottsbluff band, directed by L. W. Moody, has been developed by him during the past several years until it is now the largest band of this territory, one of the largest in the state, as well as one of the finest in the country for towns the size of Scottsbluff. It is composed of nearly thirty members, many of whom are professional and long-experienced musicians.

These bands are proving themselves to be among the best community advertisers of which their respective towns can boast, with prestige that has reached far beyond the bounds of the home territory. The Chamber of Commerce is beginning to realize this to the extent of sponsoring continued interchanges, not only between Mitchell and Scottsbluff, but among other towns of Scottsbluff County.

LAMONT JOHNSON.

Boys' Building Project Receives Community Support

PERU, IND.—Peru's Boy-Built Home, which stands as a monument to the efficiency of the manual training department of the Peru High School, is the culmination of plans formulated by a committee of local relators during the Y. M. C. A. observance for 1926 of National Thrift Week, of which an "Own Your Own Home" day was a feature. The committee invited the donation of a building lot, and one of our citizens interested in the work of the High School responded with a warranty deed to a lot in Oakdale, part of the industrial section of Peru. The instructors and students of the manual training class enthusiastically accepted the opportunity to show their skill in the construction of a modern dwelling.

All plans, estimates, details, and specifications were produced by the boys of the architectural drawing class. Tracings and blueprints of all drawings were made and a cardboard model visualizing the finished five-room house was made. Much practical thinking was done by the young architects in drawing up the plans, and the best possible construction was figured in the building.

The foundation work was started on April 19 this year, and on June 22 the finishing touches on the house were completed, the plumbing, brick laying, and electrical work having been done by trained craftsmen. The boys then proudly turned the dwelling over to the committee, to be furnished and opened to the public for a four-day inspection period. The furnishings were loaned by local business men.

The work of the Vocational Department of the High School evidently makes a strong appeal to the citizens of Peru. Generous donations of materials, equipment, labor, and cash were received from all sources, and the local press gave the project some splendid publicity. The Peru Chamber of Commerce offered its wholehearted support to the project and shouldered the bulk of the

THE BOY-BUILT HOME, PERU, IND.

work in connection with the publication of an attractive souvenir booklet which tells in detail the story of this ambitious undertaking of the High School boys, and gives proper acknowledgment to all those who helped to make the Boy-Built Home possible. Copies of this booklet may be obtained upon application to the Chamber.

The house was sold by the Peru Realtors Association, and yielded a profit of $1,500, which was presented to the High School Athletic Association for the purpose of reducing the indebtedness on their athletic field.

F. B. LAMSON,
Secretary, Peru Chamber of Commerce.

Organization for Inter-Community Cooperation in Fire Fighting

CHICAGO HEIGHTS, ILL.—There are few fire departments of today that can claim to be adequately equipped and manned to cope with any emergency. Even in the larger cities the fire departments find it necessary occasionally to call for outside help. In fact, it is manifestly impracticable to maintain for a department sufficient unto itself in any conceivable situation.

That good roads and automotive apparatus have cut down the distances between contiguous towns is well recognized, and for one town to call on another for help in an emergency has become a frequent occurrence. Because of this, it is natural that an inter-community interest in fire protection should develop. In Cook County, Ill., the outgrowth of this situation has been the formation of the Community Firemen's Association of Southern Cook County, and it is believed that this is only one of many similar organizations now functioning or in the process of formation throughout the country.

The association in Cook County owes its inception not so much to the frequency of call for help in emergencies beyond the control of the individual towns that it represents, as to the problem of handling calls for help originating in persons not directly connected with the fire departments. It has long been the custom in this section to respond without question to all requests for assistance. On some occasions, however, town officials, or perhaps persons in no official capacity whatsoever, alarmed at the threatening appearance of a fire, have put in unnecessary calls for help from surrounding towns. The reaction of the fire chief and his men who, while ably coping with the fire, find apparatus rushing to the scene from various directions, can be imagined. It is natural that they should sense a reflection on their ability. On the other hand, it does not add to the peace of mind of the chief responding to find that his run of several miles, while leaving his own community without proper protection, has been for no purpose. Such occurrences, attributable merely to lack of judgment on someone's part, have at times been the cause of strained relations between the officers of the fire departments involved.

To reduce to a minimum the possibility of such embarrassing situations, the Community Firemen's Association of Southern Cook County has adopted a code to be used by the members of the departments represented, when making calls for help. In this way it is easy to establish the authenticity of a message, and all other requests for assistance from outside towns are ignored.

This is not the only problem, however, to be solved through the Association. The standardization of hose fittings, or at least the carrying of adapters, will no doubt be realized as a result of this mutual interest; resources and equipment have become better known; and greater sociability and good fellowship are being fostered. Each town has its individual difficulties, and the exchange of ideas and suggestions made possible through the monthly meetings of the members have been of great benefit.

M. S. PHILIP,
Chief, Chicago Heights Fire Department.

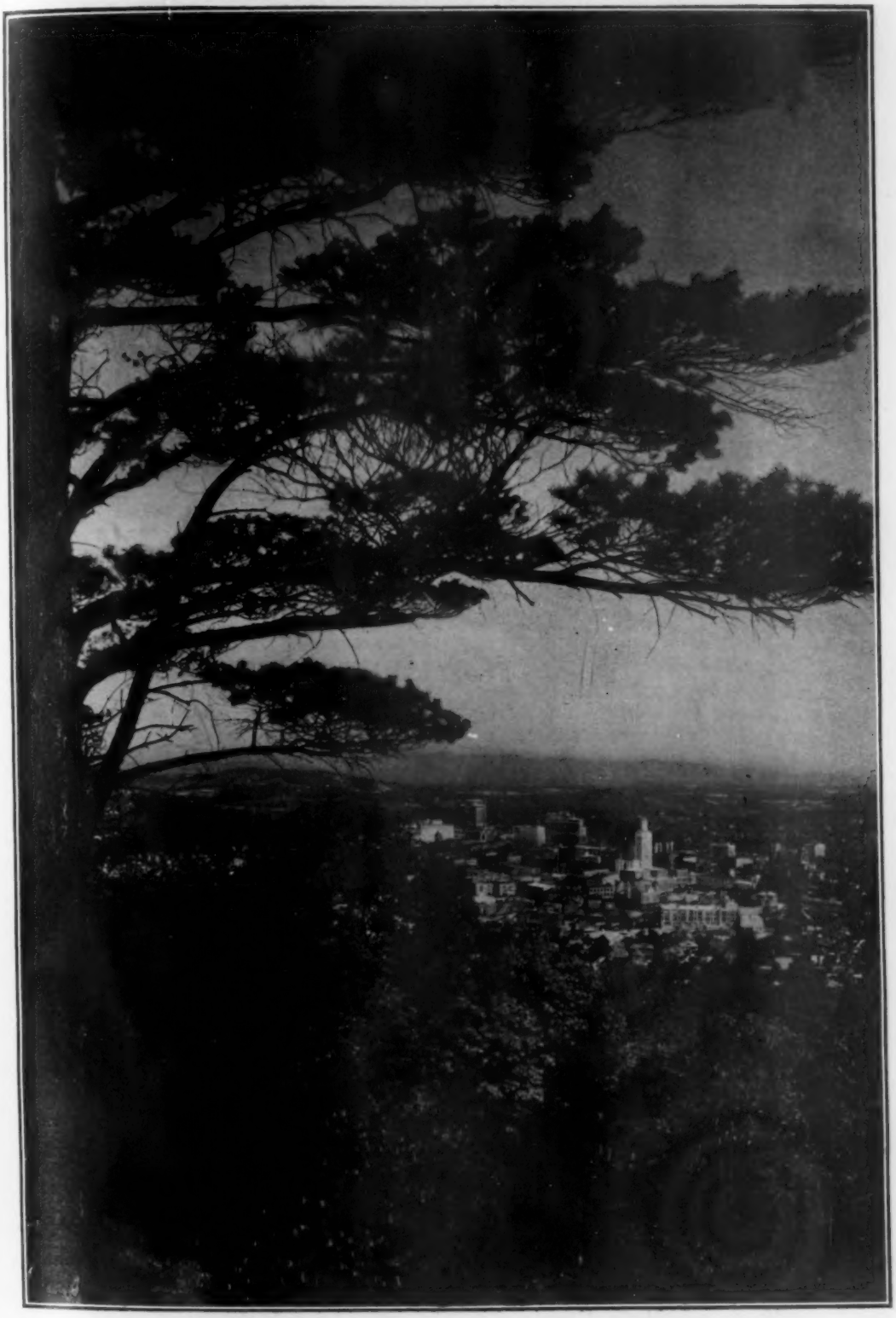
Asheville Builds a New City

By John Dewey Topping

WITHIN the next few months the city of Asheville, N. C., will issue bonds aggregating in value over $2,500,000. Part of this issue is already on the market. The whole sum raised through this means will be used in the promotion of a gigantic municipal building program.

North Carolina in the last decade has created wealth for herself in good roads and good schools. Asheville, during the same period, has partially renovated and rebuilt a city which had in a business way entirely outgrown itself. Streets, municipal buildings, parks and other public property have been altered to such an extent that old residents returning to the section have found it difficult to locate points which they formerly knew as landmarks.

On January 1, 1925, the Asheville Chamber of Commerce, with other community forces, inaugurated a five-year Program of Progress. This program contained ninety-four major objectives; and although less than two years have elapsed, nearly half of them have been attained. Asheville has gained materially in this Program of Progress. A sound municipal building plan has included a municipal market-house valued at $450,000, a municipal garage at $125,000, a new incinerator which took $100,000 from the city treasury, a new high school at a cost of $325,000, additions to the grammar school group on which the city spent nearly $700,000, a reservoir on Bee Tree Mountain and an aqueduct which together cost $1,250,000. In addition, plans are already under way which will result in the erection of a viaduct and the construction of a boulevard system which



GLIMPSE OF ASHEVILLE, "IN THE LAND OF THE SKY," PHOTOGRAPHED FROM THE PINE-CLAD SLOPES OF A NEIGHBORING MOUNTAIN

THE CROWNING GLORY OF ASHEVILLE'S CIVIC CENTER

The city of Asheville, N. C., has joined forces with Buncombe County in the construction of a twin City and County Building. This structure, which will occupy the principal position in the civic center of Asheville, will be constructed at an approximate cost of $1,250,000

will lead one of the main arteries of the city through the heart of Beaucatcher Mountain by means of an 1,800-foot tunnel.

Special attention has been given to facilities for outdoor sports. Within the last few months $200,000 has been expended on improvements at the Asheville Recreation Park. These include, among other things, a swimming pool which is one of the finest in the country. The dimensions are 100 x 250 feet, and the bathhouses and equipment are the best obtainable. A baseball park has been established at a cost of $215,000. A football stadium is being opened for the fall games at an initial cost close to $50,000. An eighteen-hole golf course is now complete and will be thrown open to the public as soon as the sod has grown on the greens. In the building of this course the city expended $150,000. Asheville's municipal recreation equipment will be further increased as demanded. The program includes an auditorium, additional parks, and tennis courts.

The Civic Center

Asheville's greatest achievement was inspired by the demolishing of the old City Hall. When the head of Pack Square was cleared, a sudden new vista was opened to the view. Plans for the new City Hall, which had been already made, were suddenly altered. The building site was moved back nearly two blocks, creating a new civic center which when completed will be one of the chief attractions of the city.

Plans now ahead include a twin City and County Building designed along superb architectural lines and connected by a bus terminal. The cost of these buildings will run well above a half-million dollars. The architects have worked with an eye to the air traffic of the future. The joint City and County Building when completed will present an attractive angle to the air as well as to all other sides.

A long parkway leads across the square, and the vista will be closed at the end by the new buildings. Beyond these the mountains rise as a crowning glory of the perspective. The square will be greatly lengthened and will be ornamented with appropriate decorations. The beautiful electric fountain which now occupies the head of the square will occupy a place at or near the center of the new plaza. City plans include an auditorium near this center. The city market and the Pack Memorial Library already front on this open space.

The civic center is the realization of a dream which was presented to the city by Dr. John Nolen over a year ago. Some modifications of the Nolen plan have been found necessary, but they have in no way detracted from the original. Asheville in building the city's chief plaza has laid a foundation for future beauty.

Two Suggestions for Raising the Status of Public Health Officers

By S. J. Crumbine, M. D.

General Executive, American Child Health Association

AS a result of much thought on this subject, two suggestions are offered, in the hope that out of the discussion some practical methods may develop that might be brought to bear on the solution of the all-important obstacle to public health work—insecurity of tenure.

The first suggestion is that of the conscientious use of the Appraisal Form as recommended by the Committee on Municipal Health Department Practice of the American Public Health Association; (a) for evaluating the results of public health activities as a basis for comparison with other cities of similar size; (b) for checking efficiency of work; (c) in formulating a well-rounded health program with due consideration to the work and accomplishments of voluntary health agencies; and, most important of all, so far as it concerns our present theme, (d) to list the public health assets of the city in a way that the chamber of commerce, the newspapers and the man on the street may understand—to present the facts and record their relative value as expressed by professional group judgment, through the use of the Appraisal Form, thus revealing the strong and the weak places of the work, always keeping to the fore the fact that, to a very considerable degree, the community economic efficiency, happiness, and health are conditioned on the scope and effectiveness of the health work of the community.

Insecurity of Tenure and Low Salaries, Two Obstacles to Effective Public Health Administration

That the remarkable progress to the credit of public health administration in recent years has been made in spite of two obstacles which ought now to be removed in the interest of further advance, was emphasized in the paper from which excerpts are here published, at the recent American Health Congress in Atlantic City. These two handicaps—insecurity in tenure of office, and low salaries—have, in Dr. Crumbine's opinion, been the chief obstacles to a movement that, under more favorable circumstances, would long ago have demanded the highest type of trained administrative personnel at salaries commensurate with the value, importance, and dignity of the professional service rendered.

Two suggestions were offered by Dr. Crumbine as remedies for insecurity of tenure: (1) that health officers make conscientious and courageous use of the Appraisal Form of the American Public Health Association to list their cities' health assets and liabilities; and (2) that industrial and life insurance companies consider the fire insurance plan of city and personal credits and classification for adoption in industrial and life insurance. Security of tenure and freedom from unjust political interference, as assured to chiefs of fire departments under the fire insurance rating plan, should under the industrial and life insurance plan provide for similar guarantees for the health officer.

Far be it from me to believe, much less to advocate, that the Appraisal Form is a panacea for the ills of public health administration, be they political or otherwise; nor is there special virtue or magic in its *perfunctory* use, but I do believe that two results may reasonably be expected to flow from a fearless and thoroughgoing appraisal by the health officer of a city's liabilities and assets in health: first, documentary proof, if such were needed, that the health officer is genuinely interested in the health condition of his city and in ways and means for its improvement and betterment; second—a corollary of the first—that interference, political or otherwise, with an official whose devotion to duty is generally known and acknowledged, and who has shown sufficient courage to grapple with his problems as well as to display his accomplishments, would, from almost every standpoint, be construed as unfriendly to the health interests of the city.

When citizens generally come to realize that political interference with efficient and interested health officers is an interference with their right to have the fullest measure of health protection, rather than a matter which concerns only the person of the health officer, the time will have arrived when that grass-root note of public disapproval, concerning which the average politician has a very acute

hearing, will operate to stay his hand from unwarranted, unjust, and unholy interference! The conscientious use of the Appraisal Form will, in my opinion, hasten that day. There is accumulating evidence of the soundness of this theorem. Moreover, the absence of risk of unfavorable results in the faithful use of the Appraisal Form by the municipal health officers, should encourage the hope of its early trial by every one interested in health administration and the security of tenure of office.

Analogies Between Health Protection and Fire Protection

The second suggestion concerns itself with a system of credits on life and industrial insurance rates, earned by cities for maintaining certain well-defined and efficiently operating health protection measures, which have been shown to be more or less effective in the prevention of sickness and premature death.

This suggestion may appear, at first thought, impractical and visionary, if not revolutionary, yet a review of the evolution of fire-preventive measures will show the economic justification and precedent for such a plan.

Following the Civil War there was an enormous increase in fire losses all over the United States. Many fire insurance companies were threatened with insolvency unless insurance rates were immediately raised or methods of fire prevention put into effective operation. Both of these expedients were adopted, and thus there were put into operation two distinct forces designed to become effective because of the economic interest involved to the property holder. Although each operated from a different angle, yet their final economic pressure was upon the same point—structures and personal belongings subject to destruction by fire.

The first step in fire prevention was that of the inspection of buildings, with the object of determining the remediable fire hazards. This led to a crude system of evaluation and grading, which has of later years been repeatedly revised and refined, so that now every detail of construction and fire liability or asset is clearly set down as a matter for permanent record in the office of the Fire Insurance Rating Bureau.

The second step in fire prevention was that of an appraisal of the city's means and measures for preventing and fighting fire. The development of this idea, too, has grown with the years, until now—paraphrasing Dr. Herman Biggs' famous epigram—within certain limitations every city determines its own fire insurance rate!

It is interesting to note how the health Appraisal Form has developed along almost parallel lines with the fire prevention appraisal. Out of a total of 5,000 points as a perfect score in fire protection for a city, the following relative values are given to the major subdivisions:

Water-supply	1,700
Fire department	1,500
Fire-alarm	550
Police	50
Building laws	200
Hazards	300
Structural conditions	700
Total	5,000

Each of these seven major subjects is divided into many items, each of which is the object of inspection and grading. For illustration: the matter of water-supply is divided into 32 different items, demanding careful inspection and analysis; the fire department has thirty-four items upon which inspection must be passed for a perfect score; and so on through all the seven major subdivisions.

The fire hazard rating of the city, together with the so-called basic rate, determines the fire insurance rate for the city, which, with certain credits which the individual insured may secure by reason of special protective measures—such as, for example, a sprinkling system in a factory or store building—fix the final fire insurance rate for each property insured.

No fire insurance company will insure any property against loss by fire without first consulting the rating of the city in which the property is located and the structural and geographical hazard of the property to be insured: the total of the liabilities and assets determine the rate charged for the assured.

The recognition of the economic soundness of the appraisal plan and its general adoption throughout this country have been stubbornly resisted by many municipalities and states, and, in some instances in the early history of the movement, by some of the insurance companies; but, as is the case in every economic or social reform that is sound in principle and practical in application, it has gradually forced recognition and adoption until to-day it is accepted as standard procedure by the United States Chamber of Commerce and by all but a few of the states in the Union.

A Comparison of Economic Losses from Fire and Disease

Is there economic justification for the proposal that the business of health protection be placed on the same sound business basis which

is now the very foundation upon which modern fire insurance business rests? Let us analyze economic losses involving property on the one hand, and human life on the other, for the answer.

The fire losses, both partial and total, for 1923, in cities of 30,000 and over, reached the enormous sum of $159,209,470. In these cities there was expended for various forms of fire protection the sum of $114,672,921, or $2.93 per capita, to safeguard property from the hazard of fire.

In 1923 in cities of the United States Death Registration Area having a population of 10,000 and over, there were 140,620 deaths from the so-called preventable diseases. We estimate 64,136 of these deaths to be preventable. Considering the average monetary loss caused by each death to be $6,000, the total loss due to these deaths is $384,816,000. This represents the amount of money which can be saved annually if existing knowledge of the control of communicable diseases be applied.

I believe it will be conceded that effective use of our present knowledge in the control of preventable disease is possible only through a modern health department, completely equipped with means and personnel, and unincumbered by interfering or inhibiting influences that so often thwart purpose and absorb effort.

More and more, departments of health are realizing that educational measures in disease control should include all the preventable diseases as well as the communicable diseases, and already tremendous savings are being made in this field. Maternal and infant mortality, heart diseases, food deficiency diseases, and the long list of maladies due to various forms of focal infection and others are giving way to aggressive modern preventive medicine and public health work, of which no accounting is attempted at this time, but which, if added to the economic credits of health activities, would enormously swell the total.

It should be noted that the fire loss includes both partial and total loss by fire, where the life loss includes total loss only, or loss by death. It is needless to say that if the economic loss of preventable sickness and impairment to health were added—were it known—to the economic loss by death, the total would reach a staggering sum. If, in addition, we should attempt to enumerate or evaluate the industrial and social wastes of preventable sickness and death, or to picture the human sorrow and tragedy that is an inevitable accompaniment, most of us would die of shock before our work would be completed. It is an impossible task!

There was expended for health protection, excluding hospitalization of tuberculosis and communicable diseases, in cities of 30,000 and over in 1923, the sum of $17,684,460, or 45 cents per capita, as against $2.93 per capita for fire protection.

It would be difficult to determine just why the protection of life and health in American cities has not commanded the same degree of interest, organization, and expenditure of public fund as that of protection of property from fire, but this much can be said, as it is a matter of historical record, that the rapid progress in the development of efficient means for fire protection is a direct result of the interest and continued activity of the National Board of Fire Underwriters.

A full-time staff of well-paid "high-power" men are constantly applying all available scientific knowledge and inventive progress to the main project of fire prevention. Through the diligent use of the (fire) appraisal form through which definite information is secured upon which fire rates are based, constant pressuure is made to improve personnel and equipment for fighting fire and for reducing the fire hazard in structure and environment.

Has not the time arrived when life insurance companies may, with profit to the companies and immeasurable profit to the cause of public health, follow a similar plan in building up the health protective measures of the cities of America?

Relation of the Plan to Security of Tenure

But what relation has such a plan to the general theme of insecurity of tenure due to unwarranted political interference in health administration?

The first five items in the fire insurance appraisal of the city fire department are as follows:

1. Number of officers
2. Number of operators
3. Qualifications of chief officers
4. Tenure of office of chief
5. Appointment and tenure of office of officers

A city which permits political appointments to be made in the case of the chief or officers of its fire department must suffer by adverse scores which bear on the fire rates for the city, and thus cities have almost universally aban-

doned the idea of using the fire department as a medium for paying political debts. It would be a political luxury which no city could afford or the citizens long tolerate.

. . . . . .

Is not the health hazard of the people in a city with a pure water and a safe pasteurized milk supply, greatly lessened? Will not the mortality from diphtheria be greatly reduced or perchance eliminated by an efficient health department continually and insistently immunizing pre-school children with toxin-antitoxin? Will not deaths from tuberculosis be cut in half by the intelligent use of well-known means if made available to an efficient health officer?

In an article in the November, 1925, *Survey Graphic*, under the title "Health Work Pays," Louis I. Dublin, the author, made the following statement:

"For the past fifteen years a business organization, the Metropolitan Life Insurance Company, with which I am associated, has spent an average of more than a million dollars a year in its public health campaign for industrial policyholders. This vast investment has reaped a return of 200 per cent; the money saving resulting from a lowered death-rate which the company attributes to that campaign totals almost twice its cost."

We all concede that these results are within the realm of attainment if any city sincerely wishes to attain them; and we believe that much more rapid progress could be made in this direction if some plan similar to the fire insurance plan could be adopted, together with intensive field work, by a group of full-time field workers, whose business it would be to feature the economic importance of effective health work to the business interests of the country.

Unless the difficulties—and they are many—are really and actually unsurmountable, it seems that any reasonable plan that gives promise of removing the present handicaps in whole or in part from public health administration, should receive our thoughtful consideration.

How Can Grown-ups Play?—Prizes for Practical Suggestions

WHAT is the most interesting thing you know about play for grown-ups? If you will write an account of it promptly, you may win a prize of $250 or $100 or $50, and help the recreation movement. These prizes are offered by the Harmon Foundation. In announcing them, *The Survey* says:

"Millions of dollars are sunk in investments in commercialized amusement. Millions of dollars are spent by Americans in buying ready-made diversion. Has anybody a clue to a way in which adults can be helped to do something, to make play for themselves?

"Has anybody thought seriously about luring the pavement-bound city man or woman into the parks and then finding something for him to *do* there beside pet and picnic?

"Who has a successful workshop where grown-ups come to potter or weave or carpenter just for the fun of it—as children do in the experimental schools—and so learn through and in play how to work out satisfactions for the inner man?

"If you have a bit of experience, or a stretch of community history or a pet theory that has its feet on the ground, that relates to any of these questions, write it down and offer it for *The Survey's* second quarterly competition under the Harmon Awards."

THE CONDITIONS

Manuscripts must be not less than 1,000 nor more than 2,500 words in length, typewritten, double-spaced, on one side of the paper.

Delivery must be made not later than noon of September 30, 1926.

Address them to Jury, Harmon-Survey Award 3, care of *The Survey*, 112 East 19th Street, New York City.

Identification must be by means of a pen-name signed to the manuscript, with an accompanying plain, sealed envelope having on the outside the pen-name, and on the inside both pen-name and the real name and address of the author.

Ohio Fire Chiefs Advocate Purchase of Fire Apparatus by Counties

At the recent annual convention of the Ohio Fire Chiefs' Association, the following resolution advocating the purchase of fire apparatus by counties was adopted:

"The township fire-protection law has been invoked by many townships of the state with most satisfactory results, but the township is not always the proper unit, and we, therefore, recommend the enactment of a law authorizing the county commissioners to purchase fire apparatus, and place it at strategic points of the county for the protection of the villages and farm property."

The Fifth Annual Asphalt Paving Conference is to be held in conjunction with the meeting of the American Society for Municipal Improvements, November 8-12, Mayflower Hotel, Washington, D. C.

Building Lines in Village Centers and Creation of By-Pass Routes

By Harold M. Lewis

Executive Engineer, Regional Plan of New York and Its Environs

WITH few exceptions, the main highways between our existing population and business center were mapped and acquired before the days of the motor vehicle. At that time a 50-foot right of way seemed ample to provide for adequate roadway space, and 66 feet seemed a very generous allowance. Many of the roads in the outlying districts had only a 33-foot right of way. The Commissioners of 1807 who prepared the New York City map for the major part of Manhattan Island were considered quite extravagant and were exceptionally far-sighted in providing a large number of 100-foot streets.

At the present time the major traffic arteries cannot be suitably accommodated in the 66- or 50-foot rights of way which many of them are now compelled to utilize. There has resulted a very serious congestion upon the main roads leading to and from our larger cities, as well as upon many of the principal avenues within those cities. Through a village, where shops and other structures are pushed to the property line, the highway must accommodate not only the vehicles which are passing through the village but those that are parking in front of the shops and that local traffic which is stopping, backing and turning. Where an artery is locally a village street, it becomes a bottle-neck and everybody is delayed and distressed.

Street Widening Through Setback Ordinances

If a village street must also serve as a through artery, a

A CONGESTION POINT DIFFICULT TO REMEDY

Note how business fronts have been added to old residences at (A). New business buildings at street line obstruct view at corners

CAN THIS STREET CONTINUE TO CARRY BUSINESS AND THROUGH TRAFFIC ON EXISTING PAVEMENT WIDTH?

A setback such as existed in the old residences at (A) would have been inexpensive widening, if maintained throughout the street

RESIDENCE CHANGING TO BUSINESS

Setback of residence buildings was maintained by a postoffice at (A), but was entirely given up by business buildings beyond

BRONX RIVER PARKWAY FURNISHES A BY-PASS FOR TRAFFIC AT WHITE PLAINS
The bridge shown carries Main Street over the Parkway. This point is within 200 feet of the railroad station and within two blocks of the business center of a city of about 30,000 population

width of 120 feet or more between buildings should be established by means of setback ordinances. In many localities there still are along such streets a large number of residential buildings which are set back from the street line far enough to furnish such a width. As business increases and encroaches upon residential property, a new business front generally runs out to the street line. Intensive development of this kind makes very difficult and often impossible a street widening adequate to prevent the bottle-neck conditions already described. Zoning ordinances should be established to check this practice and to permit, without the necessity of excessive building condemnation, such widenings as are imperatively needed in village centers.

Street congestion is also found outside of the villages, and the present traffic and its probable growth may demand an increased width at such points as well as within the village centers. The roadway may, however, be somewhat narrower in the open country than within the built-up sections. Points offering particular difficulties are intersections with other important highways. Garages and other service buildings are apt to appear at such locations and, when built out to the property lines of a 50- or 66-foot right of way, exaggerate the difficulties just where traffic is slowed up, anyway. They also increase the element of danger by obstructing vision at the crossing. Finally, they make it expensive or impracticable to widen the roadway or to obtain the space necessary to separate grades at the intersection. Setback lines should be established at such points far enough back from the present street line not to obstruct the vision and to permit future widening of the roadway. Such a procedure is not drastic or oppressive to private property.

If the open property along an arterial highway whose right of way is not more than 66 feet wide is later subdivided for residence purposes, the maintenance of a setback line of 40 feet or more, depending on the width of the right of way, will remove the residences from the noise and fumes of the heavily traveled pavement. If at a later time the use of the property changes from residence to business, the fact that stores are set back to this same line will insure adequate room for the parking of automobiles.

If it is quite impossible to obtain adequate space for through, local and parking traffic along an existing street through a village center,

it would be well to consider the practicability of providing a by-pass route to relieve the congested center of non-stop through traffic. Unfortunately, there has for many years been a feeling among merchants that congestion upon the highways upon which they front is an asset to their business. There may be some ground for this when pedestrian traffic is considered, but it is rapidly being recognized that motor vehicle congestion offers serious interference to the transaction of business.* The motorist prefers to shop at points where he can avoid the inconvenience and dangers resulting from heavy traffic and where he can readily find a place to park his automobile. There is also a pre-automobile tradition that a wide street hurts business. But adequate and convenient parking space aids the shopkeepers' business far more than the additional street width hurts it. While a wide pavement loses something in efficiency unless it is subdivided into separate roadways, properly designed safety zones can make such a street safer and more agreeable for pedestrians than a narrow street which is congested.

In New York State the Westchester County Park Commission has been particularly successful in convincing the local merchants of the advantages of removing the through traffic from their business streets. The Commission is planning to build new routes to accommodate through motor truck and passenger traffic at some distance from the heavily congested Albany and Boston Post Roads. It is confidently expected that the new facilities will permit the existing streets to assume again those business activities which have been greatly impeded by the present congestion.

By-pass routes need not necessarily pass outside of the built-up districts. In some cases they can advantageously be located through the cheaper sections of a community by designing them so that they will pass under or over the main avenues and thus furnish uninterrupted motion. An example of this is the location of the Bronx River Parkway through the city of White Plains in Westchester County. Here the parkway passes very close to both the railroad station and the center of the city, but avoids any intersections at grade with the existing street system. A suitable by-pass may thus be procured by either a lateral or a vertical movement of an existing traffic route, or by a combination of both.

EDITORIAL NOTE.—For a tabulation of opinions of several hundred merchants on this subject, see THE AMERICAN CITY for June, 1926, page 664, and July, 1926, page 62.

The Secretary of Labor on the Value of Recreation

AMERICA, believes Secretary of Labor James J. Davis, needs more chance to play. In an article on "The Value of Recreation," in the August issue of *Public Affairs*, he says:

"We shall not do ourselves, our children, our community, our country, or the human race the duty which we owe each and all of them unless we shall provide the things which childhood should have by right—true recreation and real outdoor life. I know something about children, for the better part of my life has been spent in the service of childhood. I believe that in every child we can read God's promise for a better world, a better humanity in the future. As to child recreation, this is my creed:

"I believe in directed play, for no child just learns to play. It must be taught.

"I believe every child should have the opportunity to use a well-equipped athletic field, with the necessary apparatus for our great national games of football and baseball, and for track and field events.

"I believe that every child should have the opportunity to visit periodically, under proper direction, a lake or river, to learn to swim, to dive, to manage a boat or a canoe.

"I believe that every child should have available a site for camping out, for living in the open for a time, for getting into the woods and becoming acquainted with the living and growing things of nature.

"I believe that America owes it to her childhood to provide permanent summer camps, where boys and girls of all ages, properly directed, may learn to know and love the great out-of-doors.

"I believe that every boy and girl is entitled to these things, not for five days a week, but every day in the week; not for a few months in the summer alone, but throughout the year.

"I believe that the vast area of open country within the territorial limits of the United States should be utilized to the utmost for the development of recreational resources.

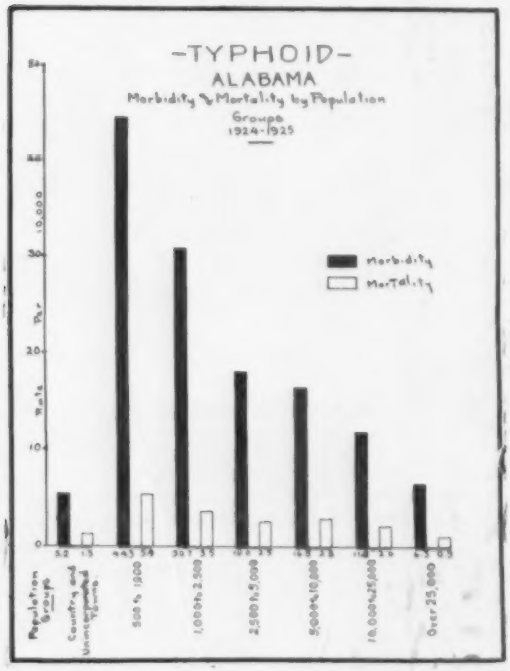
"I believe that the responsibility for providing all of these things rests with every American, with every American community, with every American state and with the nation as a whole.

"These things cannot be done in the sky-scraper-lined canyons of the streets of our great cities, it is true. But there is not a city in the United States which cannot provide opportunities for life in the open within a short distance of its crowded environs. We have vast tracts of state and national parks, whose recreational resources should be developed to the utmost for the benefit of all of our people. When childhood in America is given these things, this country will have done much to cut down the calendars of our juvenile courts, and to end the tragedy of child delinquency. These things accomplished, we will have built a sure barrier for this country against the luxuriousness and effeminacy which have been the ruin of so many of the great nations of the past."

Sanitary Precautions Needed in Small Towns

THE effect of primitive living conditions and lack of sanitary safeguards in small communities on morbidity and mortality from typhoid fever is strikingly shown in the accompanying graph from *Public Health Reports*. The figures are for the state of Alabama for the years 1924 and 1925.

Inspection of the graph reveals the fact that the highest incidence of typhoid is in the small incorporated towns having a population of 500 to 1,000. In the groups which include towns of successively larger population, the rates become progressively smaller, reaching a minimum figure in the three largest cities of the state. In direct contrast to the high rate of the small towns is the low rate in the country districts and the small unincorporated communities. The rate in this last group is as low as that in the large cities.



In commenting on this study it is pointed out in *Public Health Reports* that:

"While the variation of the rate inversely with the size of the town is more or less according to expectation, the finding that typhoid fever is no more prevalent among persons living in the small unincorporated communities and country districts than among persons living in the relatively well-sanitated larger cities, will be, to most sanitarians, a rather interesting and new conception. The question immediately occurs whether this difference may not be due to errors in the collection and tabulation of the morbidity and mortality records."

"There are two chief sources of error in a distribution of this type: first, the tendency of the physician to record as in a town, cases which properly belong to the surrounding country districts; second, differences in the completeness of reporting in the country districts as compared with reporting in the incorporated towns."

A study of these possible errors leads the authors of the article to believe that their correction would not affect greatly the difference between the country districts and the small towns as shown in the graph; and they add:

"Inferences drawn from these differences should have a direct, practical bearing in shaping administrative policies directed toward the reduction of the state typhoid rate. . . . The poplation living in the unincorporated towns and country districts have comparative protection by virtue of their very lack of contact with their fellow man. . . . The most fruitful field for typhoid reduction is the small incorporated town. In Alabama there are 116 towns ranging in population from 500 to 2,500. Though constituting only 7 per cent of the total population of the state, they furnish annually 28 per cent of the typhoid fever cases. For persons living in these towns the risk of contracting typhoid fever is excessive, at least four times greater than for residents of the country districts or in the larger cities. Obviously, the control measures should be directed primarily to this group."

Chicago Organizes a Housing Commission

TO encourage investment of capital in houses or apartments renting at low rates for the benefit of persons of small incomes and to make a comprehensive survey of this type of housing in Chicago, the Chicago Housing Commission has been appointed by Mayor Dever.

The Commission has a membership of more than forty men and women. A banker, Willoughby Walling, was chairman of the all-day conference held recently out of which this Commission developed with definite objectives. Joseph K. Brittain, president of the Chicago Real Estate Board, was chairman of the first meeting of the Commission. Miss Mary McDowell, Director of Public Welfare of Chicago, who long has advocated that such a study of the housing situation be made here, is serving on the Commission, as is also Professor Graham Taylor, noted social service worker and head resident of Chicago Commons.

Representatives of labor, education, business, big corporations, social service, real estate, clubs, and others are members of this first Commission which Chicago has had with a definite objective of improving housing and making decent housing facilities available for the family of small income.

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Trafficking in Humor

Rules for Pedestrians

LATEST figures show that American pedestrians are now dodging 20,051,276 automobiles of all styles and dispositions.

The quota for each car is six pedestrians, running, walking, or lying down.

What we need is a good set of traffic rules like the following for persons who insist on crossing streets in spite of all friendly warning in the newspapers:

Rule 1—All persons desiring to engage in the regular pursuit of crossing streets must take out a license and leave a statement showing name of their favorite hospital. This permit will be revoked after holder has been knocked down and run over three times, unless he gets a license entitling him to additional accidents.

Rule 2—Pedestrians who start across the street in the middle of the block are allowed three downs. If they can't make the morgue at the end of the third down they then have the right to take a gun and shoot themselves.

Rule 3—In being knocked down by an eastbound car, pedestrian must make a left turn. If driver fails to shout "Look out, there" after he has run over a pedestrian, the latter is liable to fine and arrest and may, at the discretion of the court, have his name misspelled in the telephone directory.

Rule 4—In crossing a street slow down to a run. The driver's score does not count unless both shoulder blades of the pedestrian touch the pavement.

Rule 5—Pedestrians who find themselves unable to get flattened out in any other way have the right to try crossing a street corner diagonally. Every man must stand up for his right to be knocked down.

—HARRY DANIEL in *Thrift Magazine.*

Signs for Automobile Trails in Sleepy Towns

(*Suggested by "The Sun Dial"*)

Kindly observe quiet zone rules passing through business district.

Speed limit twenty miles an hour or any part thereof.

The town that breaks more automobile rear axles than any other town in America.

Keep off the grass making left-hand turns in city center.

Don't toot horn passing police station.

Positively no fishing at intersection of principal streets.

—*The Sun, New York.*

The trouble with racing a train is— it too often comes out a tie

It's a bad sign when your driver reads only the billboards

FROM A LEAFLET OF THE NATIONAL SAFETY COUNCIL

Mother Goose on Balloon Tires

Jack and Jill went up the hill
At 60 miles or better;
A cop unkind
Was right behind—
They're seeking bail by letter.

—*Bridgeport Post.*

Believing in Signs

Teacher (to tardy student)—"Why are you late?"

Bobby—"Well, a sign down here—"

Teacher—"Well, what has a sign got to do with it?"

Bobby—"The sign said—'School Ahead—Go Slow.'"

—*Journal of Education.*

Daring the Joyrider

A junk shop near a railroad crossing in Denver carries a sign with this hint to motorists: "Go, ahead; take a chance. We'll buy the car."

—*Denver Public Service Bulletin.*

Not a Tuning-Fork, Either

"Got a nail in your tire?"

"Nope, just ran over a fork in the road."

—*Pittsburgh First.*

Hard to Forgive

It would be much easier to love your fellow man if he didn't honk to get by and then slow down.

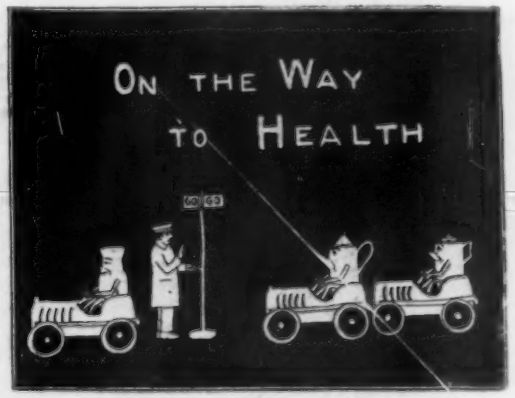
—*Washington Post.*

Over the Road to Learning

Book Agent—Now that your children go to school, you ought to buy them an encyclopedia.

Farmer—Hanged if I do. Let them walk, like I did.

—*Farm Life.*



Go! Milk - Stop! Coffee, Tea

THIS CARTON WAS DRAWN BY ARTHUR MEILKA, OF DETROIT, 15 YEARS OLD, A STUDENT IN THE FRANKLIN OPEN AIR SCHOOL, TO WHICH HE WAS SENT WHEN SYMPTOMS OF TUBERCULOSIS WERE

Helpful Hints from the Third National Shade Tree Conference

A LARGE group of foresters, landscape architects, entomologists, plant pathologists, horticulturists, and others interested in the care and protection of street and park trees met in Philadelphia, August 2 and 3, for the Third National Shade Tree Conference.

During the first day the delegates visited Fairmount Park under the direction of Samuel N. Baxter, Landscape Gardener to the Fairmount Park Commission. Later, estates north of Philadelphia, and the greenhouses and arboretum of P. S. du Pont, near Wilmington, Del., were inspected, and interesting observations were made on the treatment of trees for leaking gas-mains, diseases of beech and sycamore trees, and the results of feeding and spraying.

At the evening session Major R. Y. Stuart, Secretary of the Pennsylvania Department of Forests and Waters, Harrisburg, delivered an interesting feature on "Tree Appreciations," in which he outlined the many uses and abuses to which shade trees could be put.

Horticulturist F. L. Mulford, of the U. S. Department of Agriculture, gave an interesting talk on "Some Essential Points in the Care of Shade Trees," in which he stressed the idea that too often due consideration was not given to the many different factors, including adaptability to climate and location, necessary to the successful planting of shade trees and their best development. Mr. Mulford enlarged on the question of soil, in that it must be either sand, gravel, loam or clay, according to the type of tree, and also that it is necessary for it to be of a proper degree of acidity. He brought out the fact that the relation of soil acidity to successful tree growth has been but slightly considered, and he expressed the opinion that probably much more depended on this factor than has been suspected in the past.

The next speech was made by Dr. E. P. Felt, New York State Entomologist and a leading authority on shade tree insects, on "Municipal Shade Tree Problems and the Professional Tree Worker." Dr. Felt chose for his theme that there is a cause behind every wilted leaf, dead branch, deformed or dying tree, and upon this enlarged his address to cover the question of tree surgery, proper tree pruning, cavity filling, feeding, and spraying. He stated that a high standard had been attained by some of the leaders in the profession of tree surgery and he stressed the importance of other tree surgeons living up to the high standard which had now been set. Among the causes for poor growth, dying-back, and lowered vitality in city shade trees, Dr. Felt mentioned poor soil, protracted droughts, impervious pavements, leaking gas-mains, poorly insulated electric wires, and injurious insects and plant diseases.

To Prevent Wholesale Butchery by Inexperienced "Tree Surgeons"

One particularly interesting fact brought out by Dr. Felt was that Connecticut is the only state in the Union requiring an examination and certification of tree workers by state authorities. This law was later brought up for discussion before the meeting and it was recommended that every effort be made to legislate for this in all the states, in order to prevent the wholesale tree butchery that is being done by inexperienced and poorly equipped workers who call themselves "tree surgeons." Such a law would result in the standardization and increased efficiency of all workers in this profession. Dr. Felt in talking of city shade trees said that "the weak point is maintenance, especially in public parks and along the streets. A very large portion of the shade trees in the entire United States are given little attention and in most communities are allowed to shift for themselves, although everyone knows that 50 to 100 years are necessary to grow our noblest specimens. The first step toward securing a change in this respect is to establish standards for individual trees, groups of trees, and all the trees in a community."

It was agreed that these Conferences are doing much toward furthering the science of tree surgery and allied subjects, and that the 1927 meeting, which is to be held in Washington, D. C., shall be devoted more to the discussion of shade tree problems than to actual inspections and comparisons of work.

—C. F. Greeves-Carpenter, F.E.S.

Transportation Surveys Basis for Highway Construction Program

HIGHWAY transportation surveys covering the entire states of New Hampshire and Vermont were begun on July 16 under cooperative agreements between the Bureau of Public Roads and the two state highway departments.

As planned, the surveys are to run for three months, with 13 recording parties taking data twice during the period at each of 143 stations in New Hampshire, and 12 parties recording the traffic at 130 stations in Vermont.

As outlined in *Public Roads*, the journal of highway research published by the U. S. Department of Agriculture, the methods to be used will, in general, be the same as in the Connecticut and Cook County surveys, reports of which have been published by the Bureau of Public Roads, and the Pennsylvania and Ohio surveys which are now being analyzed. For passenger vehicles the data will show the number of vehicles passing the station during each hour, the state in which they are licensed, the number of passengers they carry, whether the purpose of travel is business or pleasure, whether passengers are from city or farm, whether the travel is an extended tour or a short trip, the origin, destination, length of trip, and the number of miles of travel within the state.

For trucks the data will show also the number passing each hour, the state of registration, capacity, origin, and destination, with information as to the character of operation and of the consignor and consignee, the total distance of travel and mileage within the state, the commodity transported, the type of trucking (for hire, contract hauling, etc.), and the status of ownership. In

addition to this information there will be recorded at special weight stations the make of truck, type of tires, and weights on front and rear axles.

Analysis of this information will make it possible to prepare maps showing the present volume and distribution of passenger vehicle and truck traffic on the highways of each of the states, from which the state highways will be classified as industrial, high, medium, or low type routes, taking into account motor-truck capacities and loads. A forecast of traffic for several years ahead will be made and a definite program of highway construction worked out. Special attention is to be given to an analysis of the relative traffic importance of the township roads with respect to the primary and secondary systems.

Economic data to be collected will include information concerning the tonnage shipped by motor truck, marketing methods, zones of truck operation, and general trucking practice.

Keeping the Park Lawns in Good Condition

THIS summer, to a greater extent than ever before, civic pride has been shown in the condition of the lawns of municipal and county parks throughout the United States. The well-trimmed grass so generally in evidence in our public parks has resulted from the increasing use of both power and hand mowers. With the power mower large areas of lawn can be kept trimmed at low labor cost. The lawn, moreover, is rolled as often as it is cut, thus ironing out the humps and bumps and keeping the sod firmly packed down. Frequent cutting makes it possible for the air and sunshine to reach the roots of the grass, promoting a thick and vigorous growth.

PENNSYLVANIA HAND LAWN MOWER IN A BIRMINGHAM, ALA., PARK

PEERLESS LAWN MOWER GRINDER INSTALLED BY THE DIVISION OF PARKS, MIAMI, FLA.

For the two photographs here reproduced, showing lawn mowers in operation, THE AMERICAN CITY is indebted to R. S. Marshall, Superintendent of Parks and Recreation, Birmingham, Ala. There is also shown, through the courtesy of J. Gerry Curtis, Superintendent of City Parks, Miami, Fla., a photograph of a lawn mower grinder which has been giving excellent service in keping the power mowers of the Miami parks in first-class condition at all times.

A 30-INCH IDEAL JUNIOR POWER MOWER CUTTING IN ONE OF THE BIRMINGHAM, ALA., PARKS

A New City Which Is Planning for Growth and Growing by Plan

By Charles R. Tips

SOMETHING new in city building for the Southwest is taking place in the town of Three Rivers, Texas. Unlike most of the new cities, Three Rivers is being built almost from the beginning according to a plan prepared by a city planning engineer.

Millions of dollars have been spent by some of the cities of Texas in correcting the mistakes made in the early years of building. These mistakes were due largely to a lack of vision, the original settlers having no idea that their communities would grow into such large centers of population. The older towns grew up ofttimes with narrow and crooked streets which had originally been wagon roads or even cow trails. The beginnings of most of the more modern cities can be dated from the building of the first railroad through some fertile territory. But the railroad builder has not ordinarily been accompanied by the city planners.

In selecting the junction of the Nuesces Frio, and Atascosa Rivers as the site for our new town, we had in mind particularly the development of a trading center for the farmers who were settling on the rich black lands in this region, displacing the ranchmen and cow-boys who had held undisputed sway, on account of lack of transportation facilities, since the land had been taken from the Indians under grants from the Mexican Government nearly one hundred years before. At that time—1914—we expected to build a town of only a few thousand population, and fortunately only a very small area was subdivided in a rectangular plan on the original townsite.

The World War held up development for several years, and at its close a new situation presented itself at Three Rivers.

Events Which Spurred Development

In 1918 the first big gas well was brought in about ten miles west of the town. Other wells were drilled and one of the greatest natural gas-producing areas on the American continent was developed, with wells on all four sides of the town. Over ten million dollars has been spent on pipe lines to gather this gas and distribute it in south Texas for domestic and industrial use, the first pipe line bringing gas into the town of Three Rivers in 1922. The drilling for natural gas resulted in the finding of the first shallow oil field, and an oil pipe line was laid into Three Rivers, so that this "liquid gold" might be shipped to some of the big oil refineries in the state.

A glass-bottle factory was established in Three Rivers on account of the cheap natural gas fuel available. Work was started on the development of a deep-water port at Corpus Christi at the mouth of the Nueces River, giving an added inducement to factories to locate in this region on account of the possibility of shipping products by water to the markets of the world.

These developments increased tremendously the possibilities for Three Rivers. At this stage of the development, Harry H. Rogers, now President of Rotary International, a millionaire oil man and banker from Tulsa, Okla., who had moved to San Antonio, purchased an interest in the real estate at Three Rivers, and the Three Rivers Company was incorporated to carry on the work of building the city on a greatly increased scale. Harland Bartholomew, city plan engineer, of St. Louis, was employed to prepare a city plan for Three Rivers to provide for 25,000 population and capable of expanding to a much greater size. This plan was very carefully worked out and has been one of the greatest factors in the subsequent development.

The New City Plan

It was found that the original small townsite, with its rectangular street plan, would serve very well as a central business district. A few of the main thoroughfares were widened—some to 100 feet or more. The surrounding area was carefuly laid out after complete studies were made on the ground and from airplane photographs.

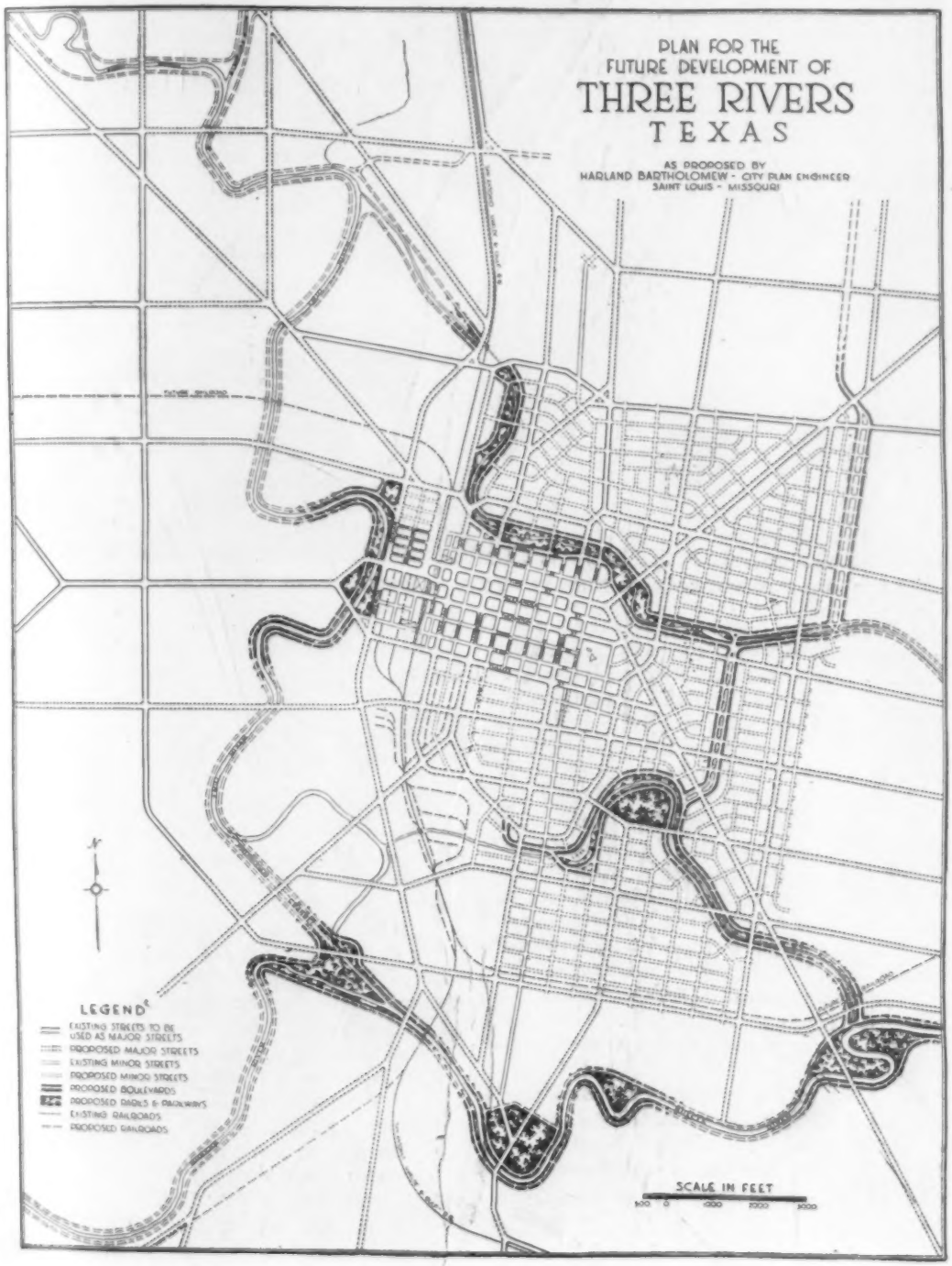
The area along the railroad and the Frio River, on the west side of town, was designated as an industrial zone. A beautiful hill, overlooking the city on the north, was laid out as a restricted residential district. The level valley land on the south and the east sides of the town was mapped as garden blocks, with the through thoroughfares established and arranged so that minor streets could be opened later in conformity with the present street plan. Sites for future elementary schools and children's playgrounds were provided, so that every child

would be within one-half mile walking distance of a school, 26 acres being provided for these school sites.

Five parks, ranging in size from 12 to 40 acres each, were planned in natural park sites along the waterways and were connected with a boulevard system.

A community center was suggested.

Since the preparation of this plan, all development at Three Rivers has been strictly in accordance with it. Two of the proposed parks have been opened for public use—the Charles Tips State Park on the Frio River, west of the townsite, which is one of a series



LAKE AND HANGING SPANISH MOSS IN HARRY H. ROGERS PARK, THREE RIVERS, TEXAS

of tourists' parks established over Texas, and the Harry H. Rogers Park, which includes a beautiful natural lake and a splendid grove of native elm and live oak trees. It is planned, during the coming year, to open the Harland Bartholomew parkway on the south side of town, in which there is also a natural lake.

The restricted single-family residential district on the hill to the north of the original townsite has been opened. Here a number of residences have been built and many others are in process of construction. Garden blocks on the south side of town have been developed, and the radiating major streets and the principal arteries have been opened. The industrial district has been expanded. The glass factory has increased its capacity and payroll. Three cotton gins and a number of other small industries have been established. The Texas Central Power Company, a subsidiary of the Insull Companies of Chicago, is building a central power-station at Three Rivers to utilize the cheap natural gas fuel and is providing electric lights and power for industries at a very low rate.

Percentages of Land Used

An analysis of the 1,200 acres of urban area, which is included in the first development of the town, shows that its use is planned as follows:

	Acres	Per Cent
Residences (single- and multiple-family)	561	46.7
Commercial	69	5.8
Industrial (heavy and light)	102	8.5
Public property (streets, schools, parks, etc.)	468	39.0

Later additions to the corporate area, included in the original plan, will be made up chiefly of residential and industrial territory, which will materially change the proportions of land used for the various purposes.

It is believed that the carrying-out of this city plan will very materially help the development of Three Rivers as one of the important industrial, commercial and residential districts of the Southwest. The town now has a population of about 1,500, having practically doubled in size in a very few months' time. The citizens of the town are working to make their community an ideal place in which to live. With the plan to guide them, it is confidently believed that the development of Three Rivers will be along lines which, in later years, will result in no vain regrets, but will be another outstanding proof of the value of proper city planning.

A Plea for Greater Sincerity in Fire Prevention

SPEAKING before the 1926 convention of the Illinois Firemen's Association, John G. Gamber, State Fire Marshal, made a stirring appeal for greater sincerity in the fire prevention movement. Placing on the insurance companies a large share of the blame for America's constantly mounting fire losses, Mr. Gamber said in part:

"You, who endanger your lives every time you respond to a fire call, know that a great number of your worst fires would never have occurred but for the insurance. You wonder how it is that men with fire records are able to secure insurance and you wonder at the liberal amount of insurance which is carried on questionable risks or questionable stocks.

"My experience in investigating fires has convinced me that almost anything can be insured at any value you wish to put on it, if you have the cash to pay the premium. Agents are eager for large premiums, for their commission depends on the size of the premium. A man can insure his property with one agent, and then insure the same property with other agents. If one agent turns him down, he can go to another agent. Sometimes the company refuses the risk after the agent turns it in. The agent then will usually write it in another company.

"It is very rare for an agent to inspect property to see whether it is a good risk, or whether the values are there. The moral character of the man asking for the insurance does not seem to be given much attention. If he has the money for the premium he seems to get by.

"Over-insurance is the rule rather than the exception in the insurance business. We all know that over-insurance is the cause of almost all crooked fires and a good many others. The downright crook always sees that he is well insured. Others, who might not think of having a fire, are invited to have one after buying too much insurance. Too liberal an amount of insurance is very likely to make a man careless and carefree as to the hazards of his property, as he feels he has unloaded the entire responsibility on the insurance companies. Yet we find it is habitual for many agents to crowd as much insurance as they can on a man.

Incendiarism Rampant

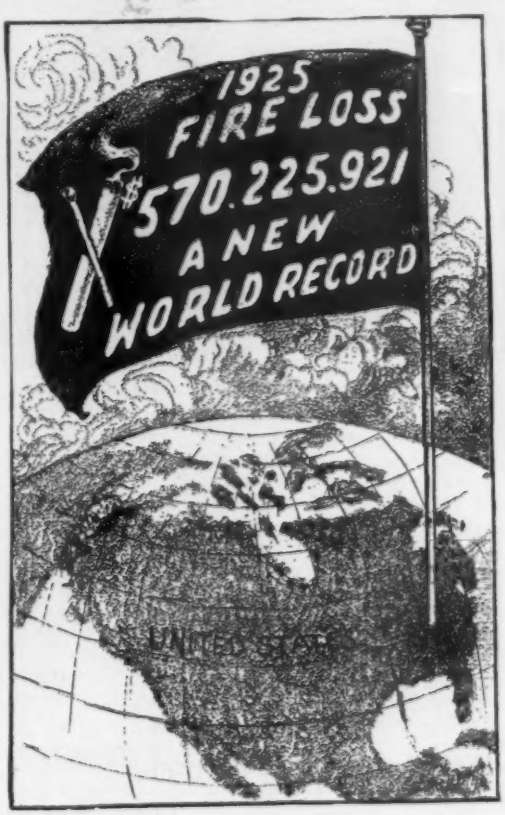
"One of the common occurrences today is the burning of roadhouses after Uncle Sam has put a padlock on them or started proceedings to do so. We are amazed to see the amount of insurance on these properties. The proprietor of a roadhouse does not know when he will be stopped from selling liquor. He usually spends considerable money fixing up his resort. If he is closed, his investment is not worth a cent. By insuring it, he can burn it and collect his investment when the padlock goes on. The insurance companies know this, and yet these places are insured liberally.

"How do they do it? In one case I looked into I found the proprietor had a hard time getting insurance until he was advised confidentially to this effect: 'Find an agent who turns in a big lot of premiums to the companies each year. They won't turn him down.' This man took the advice and was insured in 'jig' time. It is not necessary for me to say that the place burned.

"It happens frequently that a man who owns a questionable risk also owns some desirable property. The insurance companies take the questionable risk for fear they will lose the insurance on the other properties.

"You may say, 'Why blame the companies for the sins of the agents?' I say that the companies are fully familiar with the abuses and evils I have referred to and have done little if anything to remedy them. I will say further that they seem to be encouraging them.

"A few years ago I made the statement before you that fully half of our fire loss was incendiary and was due to over-insurance. I was roundly scored by a prominent insurance journal, which suggested that I had better tend to my job of finding firebugs instead of criticising insurance companies. About the same time I said that fires increased when business was bad, and decreased



AMERICA'S BLACK FLAG

In publishing this striking cartoon in "Safeguarding America Against Fire," the National Board of Fire Underwriters says: "Carefulness with matches and smoking materials—the leading cause of fire destruction, according to the records of the Actuarial Bureau—and attention to other preventable hazards, would help to tear down this emblem of national ignominy"

ATTACKING A WOODEN SHINGLE ROOF FIRE

Courtesy of the National Board of Fire Underwriters.
Photograph by Leonard G. Brandt, Fort Wayne Journal-Gazette.

when it was good. Shortly afterwards, the Glens Falls Insurance Company amazed the country by compiling a chart which showed that for a number of years the fire loss ratio went up or down almost exactly in the proportion that business failures increased or decreased. While the insurance interests were digesting this, the Glens Falls Company pursued its investigations further and last year came out with a statement that 40 per cent of the losses of the country are incendiary. That is not the worst of it. The Glens Falls Company distinctly announced its figures to be a compromise between higher guesses and lower, resulting in a 'fairly close' estimate.

Need for Adequate Ordinances and Strict Enforcement

"The situation in Illinois, as in other states, is that the local communities are woefully lacking in fire prevention ordinances. Some have none at all or what they have are obsolete. Very few of them have a really adequate code of ordinances. But the greatest shame is lack of enforcement.

"What is the situation in your community? Are you chiefs working at every opportunity to improve your ordinances? Or are you letting things ride as they are and trusting that you will be able

"Especially let me mention the oil burner hazard, one of the newest and most serious hazards we have. Very few cities have passed ordinances to protect their citizens against dangerous installations in their homes. What are you doing about it in your commmunity?

"When you find hazards in the property of one of your business men, are you willing to take time to discuss the matter with him earnestly, so that you can convince him of the necessity of complying with your order? What I am saying now applies with equal force to my own deputies. I tell my men that they must be sincere enough in their work to stay with a man long enough to explain every order fully and secure his willing cooperation if possible. It is not enough simply to slam an order on his desk as you leave. We tell our men also to invite a business man to accompany them, or send an employee, when they inspect his place of business.

"How about your mayor and city officials? Do they make pretty statements during Fire Prevention Week and then wink at violations? Do they back you up when you ask Mr. Prominent Citizen to clean up his place, or do they pat him on the back and tell him to let it ride? When you ask for necessary things to make your department more efficient, do they give you what you want, or put you off?

The Menace of the Wooden Shingle

"We are living in a commercial age. If progress hurts a business, or interferes with its progress, business is likely to fight progress. You all remember the conflagration at Berkeley, Calif., a few years ago. Wooden shingle roofs spread the conflagration. The City Council passed an anti-wooden shingle roof ordinance so that the city would be safe from this menace in the future. What happened? The lumber interests got busy and secured a referendum on the question. They conducted a vigorous campaign. The result was that the citizens whom the ordinance was going to protect defeated it. It makes me wonder whether American citizens are sincere with themselves.

"I have just read an item to the effect that the shingle output of the Northwest last year was estimated at ten billion feet and worth $39,000,000. It is figured that these shingles would fill 50,000 freight cars, shingle 850,000 houses, and shelter 3,300,000 persons, equaling a city like Chicago. With a production like that, it is not hard to see why our roof fires continue to be such a big part of our fire loss.

"Let us consider for a moment how terrible fire is. Think of the agonizing death of 15,000 people a year. Think of the suffering, privation, and loss which follows the destruction of property

by fire. And, yet, when a man has a fire through his own carelessneess, people usually sympathize with him and hope he has enough insurance to reimburse him.

"It ought to be otherwise. Suppose he were ostracized by his friends, refused accommodation at hotels, and looked upon generally as a public enemy, as he is. And why not? Fire carelessness is criminal, even though the statute books do not make it so. Any fire is likely to be the starting-point of a conflagration and endanger precious lives. Somehow, we must bring public sentiment around to this sort of a view on fire carelessness."

How Large Should a City Council Be?

IN his new book on "Municipal Government in the United States," Professor Thomas H. Reed of the University of Michigan presents a table showing the composition of councils in American cities having a population of over 300,000 (excluding Washington, D. C.). Taking the cities in order of size, according to the 1920 Census, the numbers of councilmen are as follows:

City	Number of Councilmen	City	Number of Councilmen
New York.....	79*	Buffalo	5†
Chicago	50	San Francisco..	18‡
Philadelphia ...	20	Milwaukee	25
Detroit	9	Newark	5†
Cleveland	25**	Cincinnati	9‡**
St. Louis.....	29	New Orleans..	5†
Boston	22	Minneapolis ...	20‡
Baltimore	19	Kansas City...	9**
Pittsburgh	9	Seattle	9
Los Angeles...	15	Indianapolis ...	9

* Includes Board of Estimate and Apportionment of 8 members, and Board of Aldermen of 71. ** City Manager government. † Commission government. ‡ Including Mayor.

In discussing the comparative advantages of large and small city councils, Professor Reed says:

"The considerations which govern the size and basis of election of a council are of two sorts. The first relate to the effective transaction of business within the council, the second to the adequate representation of the public outside. For the purpose of swift and responsible transaction of business, there can be no doubt of the superiority of the small council. A large council displays most of the traits characteristic of a state legislature. It develops a formal procedure—it must do so if it is to transact business at all. It is almost equally necessary for it to divide its work among committees, which means a loss in the responsibility of the council as a whole. It invites speech-making and other forms of playing to the galleries. A small council makes possible informal procedure and genuine deliberation. It is not a debating society, but a business directorate. . . . . Small size is, at least under American conditions, essential to the sound performance of the task set for the council in the commission and manager plans. For the performance of purely legislative functions, no such vigorous necessity exists for a small council, although it continues to be desirable from the point of view of efficiency. There is a downward limit, of course, below which a council ceases to be a deliberative body at all. Experience seems to have fixed upon five as the smallest number which can safely be employed.

"When we turn, however, to consider the council as a representative body, the case for the small council is not so clear. On the whole, the smaller councils of today have proved more satisfactory than their larger predecessors, not only more businesslike but more responsive to public opinion. This does not prove, however, that it is not possible to go too far in reducing the number of councilmen. A small council must be elected at large or from relatively large districts. This usually results in raising the caliber of successful candidates. It is as nearly axiomatic as any political principle can be, that the larger the district the larger the candidate must be to attract votes. Much of the weakness of the nineteenth century councils was the low moral and mental stature which could command election from the small wards of the period. There is a point, however, at which a unit of election ceases to be 'wieldy,' sometimes from mere size and sometimes from the inclusion of conflicting elements of population. The councilman elected from such a unit is frequently unsatisfactory as a representative. If the unit is too large, he ceases to be 'close' to his constituents. If it is not homogeneous, he represents one faction and ignores the other.

"In most cities, even up to a population of 150,000 to 200,000, election at large has generally approved itself in practice. Several larger cities have given it an extensive trial—Boston, Detroit, Pittsburgh, Los Angeles, Buffalo, San Francisco, Newark, and Seattle. Even in cities of this size the results have, on the whole, been an improvement over those of the large, ward-elected councils. Boston and Los Angeles, however, have recently (1924), by popular vote, substituted for councils of nine elected at large councils of twenty-two and fifteen, respectively, elected by district. How insignificant this reversal of policy may prove, time alone can show. In each case, however, the motive was clearly the people's feeling of remoteness from the councilman elected at large. The usefulness of the New York Board of Aldermen has sometimes been questioned, but that body finds an ample justification for existence in forming a connecting link between the citizen and his government. The alderman is near enough to his constituents so that, when they have business with the city government, they can come to him without embarrassment. He is the 'liaison officer' between the people of his district and the distant mayor and department heads. Just how many councilmen there should be, and from what units they should be elected, is a question to be determined, not *a priori*, but for each city by the application of the principle of the 'wieldy' district to the facts of the case."

Investigation of Sewage Disposal Problem in Twin-City Metropolitan Area

Abstract of Report of Committee to Metropolitan Planning Association of Minneapolis and St. Paul

MINNEAPOLIS, St. Paul, and the smaller cities and towns in their metropolitan area have generally considered that the disposition of sewage and industrial wastes by discharge into the Mississippi River and its tributaries would be permitted in the future as in the past. The sewer systems of the Twin Cities are designed so as to conduct this waste to the river by the shortest practicable route, and little thought has been given to collection for treatment. With the population of the metropolitan area at 750,000 or less, and before the closing of the gates at the High Dam and the formation of the Mississippi Pool in Minneapolis, these methods of sewage disposal were not questioned.

Today the cities face a different situation. Their growth and the rapid expansion of the sewer system have increased the amount of sewage deposited in the river to the point that it approaches the allowable carrying capacity of the river at the low-water stages, and the permanent closing of the High Dam has created a condition that is nearing a nuisance. In 1925 the State Board of Health, interested in public health and welfare, and the Isaac Walton League, interested in game and fish life, called the attention of the municipal authorities to the offensive conditions existing at low-water stages of the river, and asked that plans be made for the alleviation of these conditions in the future. So far the question of health has not been an issue.

The municipal authorities of the cities of St. Paul and Minneapolis have given the subject careful consideration and recently each appropriated $2,500 for the purpose of making a survey of river conditions within the corporate limits, so as to determine the extent of nuisance, the probable menace to health, and the character of the sewage which will have to be treated. The survey is now being made under the direction of the United States Public Health Service.

Two issues confront the community. The first is the possible nuisance of the accumulating sewage in the Mississippi Pool, the second the increasing volume of sewage being discharged into the Mississippi River within the corporate limits of the Twin Cities and the probability that a nuisance and health menace may develop to the extent that the United States Government may order a discontinuance of present methods of disposal. Should any change in the method of disposal be found necessary, it can be made only at a large public expense, and, considering the present tax rates and bonded indebtedness of Hennepin and Ramsey Counties and the cities of Minneapolis and St. Paul, the financing of the sewage disposal plant at any time within the next fifteen years is said to be difficult and burdensome.

After a careful study of sewage disposal in Milwaukee, Chicago, Cleveland, Detroit, Worcester, and Boston, and some rather detailed studies of possible sites for sewage treatment plants in Minneapolis, the following conclusions have been reached:

1. The method of sewage disposal now used by Minneapolis, St. Paul, and their environs, namely, the depositing of all raw sewage in the Mississippi River and its tributaries, does not as yet create a serious nuisance nor constitute a menace to health.

2. The reduction of flowage in the Mississippi River during the past few years and the improbability of an increased flowage during the next twenty years over the average of the past, will bring recurring periods when the dilution of the raw effluent of the Twin City sewers will not be sufficient to prevent a nuisance.

3. The flushing of the Mississippi Pool by the opening of the dam at the Ford plant is not practicable, and gradually this pool will fill with filth and waste to the extent that it will become a nuisance.

4. By the natural increase in population of the region, the amount of sewage deposited in the river will inside of twenty years increase beyond the amount which the average flow of the Mississippi River can dilute to the extent required to prevent a nuisance.

5. Within a reasonable length of time, from ten to twenty years, the question of intercepting sewers along the river-front, the collection of all sewage at fixed points and the scientific treatment of the sewage and the disposal of waste will be a necessity.

6. The cost of the required sewage trea-

ment works, including intercepting sewers, the producing of effluent 90 per cent pure, will be large, probably $20,000,000, but can be materially reduced, possibly by 50 per cent, by treating at the present time only that part of the sewage above Fort Snelling. This sewage would be treated only enough to produce an effluent which when added to the river below Fort Snelling could be properly diluted by the river.

7. The Metropolitan Sewage District should have an understanding with the United States Government relative to the use of the reservoir waters at the head waters of the Mississippi River. These reservoirs were built to store water to aid navigation at times of low water in the river. It has been advocated that a better use would be to average the flow at the High Dam for power purposes. A third use is now presented, that of dilution of the sewage in the metropolitan area of the Twin Cities during minimum-flow periods, and also the consideration of additional reservoirs for this purpose. During the low-water period of January, 1925, the Government was feeding the river 605 cubic feet per second from the reservoir, but if this feeding was determined largely by transportation needs, it might seriously affect the minimum flow of the river for sewage purposes.

8. As the margin of both cities for future bond issues is already so small that an emergency could be met only with difficulty, immediate steps for the financing project should be taken, even if present apparently justifiable expenditure be curtailed.

9. The plans for future sewage disposal should be made at this time, so that natural locations for treatment plants may be selected and those areas be properly zoned and future conflict as to the use of the property be eliminated.

Durability of Suspension Bridges

By D. B. Steinman
Robinson & Steinman, Consulting Engineers, New York City

THE suspension type of construction has a record of longevity unequalled by any other form of steel bridge construction.

The question of the probable life of suspension bridges recently came before the Court of Tax Appeals at Washington, in connection with the appraisal of an old suspension toll bridge as a basis for tax assessment. The structure, built about 1855, is a big source of revenue to the Bridge Company. Depreciation was one of the points at issue. After complete tests were made on samples of wire taken from the main cables, the condition of this bridge wire was found to be so nearly that of the original wire that the Government appraised the probable life of these cables at 200 years.

The late W. Hildenbrand, eminent bridge builder and authority on suspension bridges, wrote in 1902 (*Engineering News*, November 13, 1902):

"There are efficient means for protecting wires and cables from oxidation, as is demonstrated by the existence of numerous wire suspension bridges which belong to the oldest structures in the country. The wires in the cables and the suspender ropes of these old bridges are still in a perfect state of preservation, with no indication to show that the original condition of the wires had changed or would be liable to change at a definite period. The simple means employed for preserving these old bridges have, in course of time, been improved, and modern inventions have added new means, so that at present there is no apprehension felt for the durability of wire cables."

SUSPENSION BRIDGE AT FREIBURG, SWITZERLAND, BUILT IN 1834, WITH A SPAN OF 870 FEET, STILL IN USE AFTER 90 YEARS OF SERVICE

Two available means for the preservation of wire cables are:

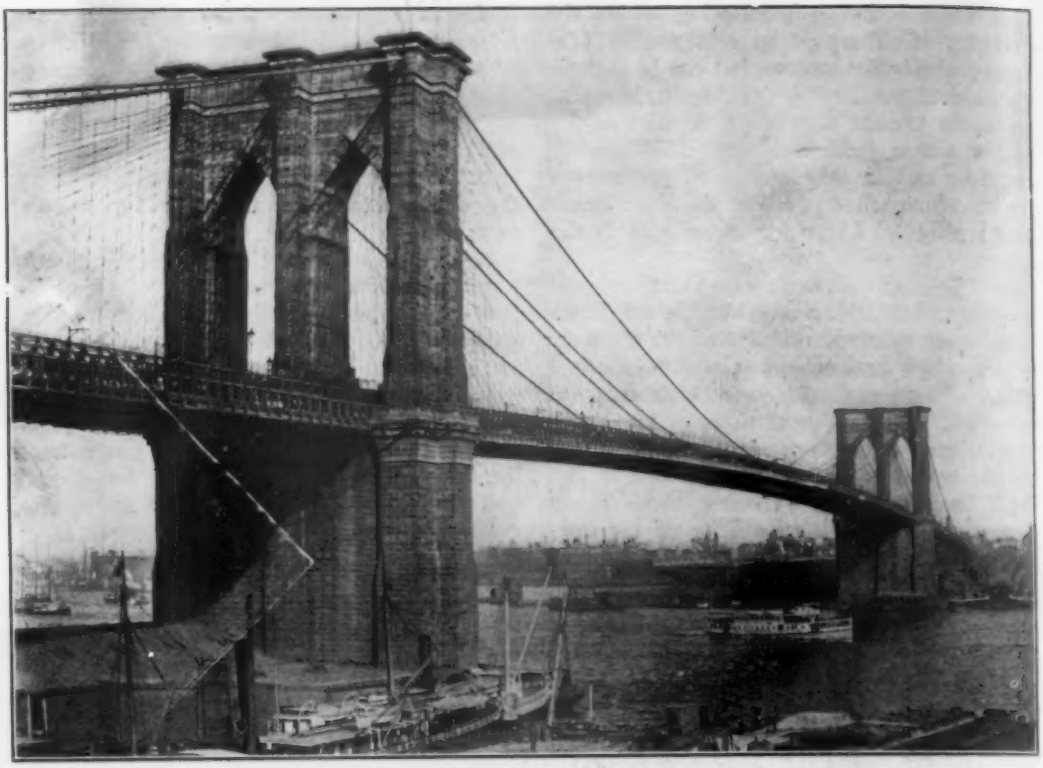
1. The use of galvanized wires for the cable
2. The use of a continuous wire wrapping around the cable

These two precautions may be used conjointly, but either alone is found to give adequate protection.

No trace of rust has ever been found in any bridge cable made of galvanized wire.

No trace of rust has ever been found in any bridge cable covered with wire wrapping.

Except possibly where the cables are exposed to sea air or other especial corrosive influences, the use of galvanized cable wire may be dis-



BROOKLYN BRIDGE OVER EAST RIVER, NEW YORK, COMPLETED IN 1883, A SPAN OF 1,595½ FEET

pensed with as a superfluous precaution. A continuous wire wrapping is found to be the most effective means for the exclusion of moisture from the cable. A properly wrapped cable can be regarded as secure against any deterioration; its probable life is measured in centuries.

Roebling's early bridges, including the Niagara railway bridge, the Monongahela bridge (Pittsburgh), and the Allegheny bridge (Pittsburgh), had cables made of bright (ungalvanized) wire, protected with wire wrapping. When those bridges were taken down after 42 to 46 years of service, on account of greatly increased loads, the cable wires were found to be in a perfect state of preservation.

The Ohio River suspension bridge at Cincinnati, still standing after 60 years of service, was built by Roebling in 1867, using ungalvanized wire. The bridge was strengthened for increased load by the addition of two cables in 1897. The old cables were inspected in 1902 and were reported perfectly sound and free from rust, after 37 years of service. W. Hildenbrand, who made the inspection, reported that the cables "were well preserved and may be safe for centuries."

In 1847, Charles Ellet built an unstiffened suspension bridge at Niagara, using ungalvanized wires. In 1853, Roebling built the railway suspension bridge at Niagara, with a span of 821 feet. He took the wires from the cables of the Ellet bridge, which he found in a perfect state of preservation, and worked them into new cables. In 1897, the bridge was taken down on account of the great increase in railway loadings. When the cables were taken down, after 50 years of service, they were as sound as when first placed in position. When the wires were cut into short lengths, they curled up, showing that they still retained the set given them by the reels on which they had been coiled, and that they had not been overstrained. The arch bridge which replaced the old suspension bridge had to be strengthened in 1918, after 20 years of service, and plans have been made for its early replacement by a suspension structure.

The Brooklyn Bridge was completed in 1883. Recent inspections show that the cable wires have been perfectly preserved, showing no trace of rust after 45 years of exposure to salt air.

The Williamsburg Bridge, completed in 1903, was built with ungalvanized wire cables without wire wrapping. Inspection in 1921 showed no signs of corrosion, except for a few spots of discoloration on the outer layer of

wires. These cables have since been provided with a proper protection of wire wrapping, applied with H. D. Robinson's wrapping machine.

The Manhattan Bridge (1909) has cables made of galvanized wires and covered with galvanized wire wrapping. The cables are still in perfect condition; no trace of rust has been discovered.

The condition of the structural steel of the Williamsburg and Manhattan Bridges was also examined by a party of engineers in 1921, and was found to be exceedingly good. Although repainting had been done at intervals of as much as eight or nine years, no structural parts of either bridge have suffered from rust. Except for thin metal in some railings and floor grills, the steelwork of both structures is considered to be in perfect condition. (See *Engineering News-Record*, December 8, 1921, page 929.)

Early suspension bridges that failed had wrought-iron wires, no protection, overloading, improper construction, etc.

The old suspension bridge at Newburyport, Mass., built in 1810, was taken down in 1909 after a century of service. It was replaced with a modern type of suspension bridge.

The suspension bridge at Reversible Falls, St. John, N. B. (span 628 feet), was built in 1852. The wires were not galvanized nor otherwise protected. The bridge was taken down in 1915, after 63 years of service.

For comparison with wire cables, it may be of interest to note that the eyebars on the Queensboro (cantilever) bridge, built in 1908, showed substantial rusting after ten years of service, particularly where they are packed too close together for easy painting.

The security of the cables against deterioration, the absence of points of wear as in pin-connected structures, the unimportance of injury or overstress in the truss members, the greater relative proportion of concrete substructure to superstructure, the inherent safety and stability of the suspension system, and the tremendous reserve capacity to carry heavy overloading—all these factors make the suspension type of construction unrivalled for durability and longevity.

LIFE OF SUSPENSION BRIDGES

		Age, 1926
1810—Newburyport (Mass.)	Span 244 ft.	99 years
1818—Tweed (Berwick, Eng.)	Span 450 ft.	Still in use (108 years)
1823—Rhone (Tain, France)	Span 280 ft.	Still in use (103 years)
1824—March (Strassmits)	Span ft.	76 years
1826—Menai (Wales)	Span 578 ft.	Still in use (100 years)
1826—Conway (North Wales)	Span 327 ft.	Still in use (100 years)
1827—Hammersmith (London)	Span 400 ft.	55 years
1828—Baucaire (Rhone, France)	Span ft.	Still in use (98 years)
1828—Karl (Vienna)	Span 312 ft.	42 years
1829—Regnits (Bamberg, Ger.)	Span ft.	50 years
1834—Fribourg (Switzerland)	Span 870 ft.	90 years
1835—Douro (Oporto, Portugal)	Span ft.	53 years
1836—Union (Tweed, Eng.)	Span ft.	Still in use (90 years)
1836—Karlsbad (Austria)	Span 222 ft.	Still in use (90 years)
1839—Caille (France)	Span ft.	Still in use (87 years)
1839—Weser (Hamlin)	Span 312 ft.	51 years
1840—Montrose (Scotland)	Span 433 ft.	Still in use (86 years)
1842—Moldau (Prague)	Span 435 ft.	57 years
1844—Ruhr (Mulheim)	Span 320 ft.	67 years
1845—Lanes (Budapest)	Span 663 ft.	Still in use (81 years)
1845—Neckar (Mannheim, Ger.)	Span 282 ft.	46 years
1847—St. Christoph (Lorient, Fr.)	Span ft.	Still in use (79 years)
1848—Guyandotte (W. Virginia)	Span 450 ft.	Still in use (78 years)
1848—Wheeling (W. Virginia)	Span 1010 ft.	Still in use (78 years)
1849—Napoleon (Lyon, France)	Span ft.	Still in use (77 years)
1849—Midi (Lyon, France)	Span ft.	Still in use (77 years)
1850—Fairmont (W. Virginia)	Span ft.	40 years

SUSPENSION BRIDGE OVER THE RHINE AT COLOGNE, COMPLETED IN 1915, A SPAN OF 605 FEET

1852—Charleston (W. Virginia)...Span 478 ft....52 years
1852—St. John (New Brunswick).Span 628 ft....63 years
1853—Welikaja (Ostrow, Poland) Span ft....Still in use (73 years)
1853—Dnieper (Kief, Ukraine)...Span ft....Still in use (73 years)
1853—Morgantown (W. Virginia) Span 608 ft....55 years
1854—Niagara (Railway Bridge)..Span 821 ft....43 years
1857—Aare (Switzerland).....Span 330 ft....Still in use (69 years)
1861—Aspern (Vienna).....Span ft....62 years
1862—Lambeth (London).....Span 280 ft....Still in use (64 years)
1864—Clifton (England).....Span 702 ft....Still in use (62 years)
1867—Cincinnati (Ohio).....Span 1057 ft....Still in use (59 years)
1868—Moldau (Prague).....Span 482 ft....Still in use (58 years)
1868—Kettentsag (Prague).....Span ft....Still in use (58 years)
1869—Frankfort (Germany).....Span 262 ft....Still in use (57 years)
1870—Waco (Texas).....Span 470 ft....Still in use (56 years)
1871—Warren (Pennsylvania)....Span 470 ft....Still in use (55 years)
1873—Albert (London).....Span 400 ft....Still in use (53 years)
1877—Point (Pittsburgh).....Span 800 ft....Still in use (50 years)
1883—Brooklyn (New York).....Span 1595 ft....Still in use (43 years)
1884—Seventh St. (Pittsburgh)...Span 330 ft....Still in use (42 years)
1891—Grand Avenue (St. Louis)..Span 400 ft....Still in use
1894—Cauca R. (Colombia).....Span 940 ft....Still in use
1896—E. Liverpool (Ohio).....Span 705 ft....Still in use

1897—Rochester (Pennsylvania)..Span 800 ft....Still in use
1899—Lewiston (Niagara).....Span 800 ft....Still in use
1900—Miampimi (Mexico).....Span 1030 ft...Still in use
1900—Cannes Ecluse (France)....Span 760 ft....Still in use
1903—Elizabeth (Budapest).....Span 951 ft....Still in use
1903—Capertown (W. Virginia)..Span 510 ft....Still in use
1903—Williamsburg (New York)..Span 1600 ft....Still in use
1904—Steubenville (Ohio).....Span 700 ft....Still in use
1907—Villefranche (France).....Span 510 ft....Still in use
1909—Manhattan (New York)...Span 1470 ft...Still in use
1911—Massena (New York).....Span 400 ft....Still in use
1915—Rhine (Cologne).....Span 605 ft....Still in use
1916—Parkersburg (W. Virginia) .Span 775 ft....Still in use
1921—Kingston (New York).....Span 705 ft....Still in use
1924—Bear Mountain (New York)Span 1632 ft...Completed
1925—Florianopolis (Brasil).....Span 1114 ft...Completed
1926—Philadelphia (U. S. A.)....Span 1750 ft...Completed
1927—Portsmouth (Ohio River)..Span 700 ft....Under construction
1929—Poughkeepsie (New York) .Span 1500 ft...Under construction
—Detroit (U. S. & Canada)..Span 1850 ft...Designed
—North River (New York)..Span 3240 ft...Designed
—Hudson River (New York) Span 3500 ft...Under design
—Liberty (N. Y. Harbor)....Span 4200 ft...Under design

Chiefs of Police Discuss Crime and Traffic

CHIEFS of Police of hundreds of cities of the United States and Canada have gone on record officially as pledging their aid for crime prevention and for traffic surveys. The action was taken at the thirty-third annual convention of the International Association of Chiefs of Police, held the latter part of July in Chicago.

The heads of police departments endorsed the creation of a National Crime Commission, to be "financed, controlled, and directed by the Federal Government, with authority to go into every detail of the administration of justice and the enforcement of law. "It was declared, in a resolution, that the Association will assist and support, through its membership, a complete survey of the criminal situation in the country.

The convention went on record also as favoring complete cooperation with all law-enforcement agencies, so that persons acting as supply agents, distributors and peddlers of habit-forming drugs may be brought to justice and adequately punished; and it opposed granting of probation, suspending the sentence or paroling such persons.

Concerning motor vehicle regulation, about which Herbert Hoover addressed the opening session of the convention, the organization declared:

"There are many conflicting laws and regulations existing in many places on this continent aimed at control and regulation of motor vehicles. Intensive study is now being made of the problem by police departments, engineers, civic organizations, and others, and these studies are not complete and probably will not be for another year.

"Be it resolved, therefore, that the Association do everything in its power to assist in these studies and, be it further resolved, that during these studies the Association go on record as opposing the use of so-called speed traps to enforce speed laws; and be it further resolved that the existing traffic committee of the Association continue in the work and report at the next convention, so that in the end a uniform traffic law will be enacted in the country."

Court procedure must be strengthened and reorganized to deal with "traffic violations and a reckless handling of automobiles as well as more serious crimes," Mr. Hoover declared. Mr. Hoover told the chiefs of police that "the problem of traffic is a new burden which our growing civilization has thrown more particularly upon your shoulders than anywhere else. The automobile has been one of the greatest blessings, for it has opened new visions of comfort, of living, and economic effectiveness to our whole people."

Samuel J. Dickson, Chief Constable of Toronto, Canada, retiring President, commented, in his annual report, on the need of cooperation of all people in the fight to reduce crime.

"Crime is no longer a matter of just local concern," he said. "City, state and national borders are not respected by the criminal. It is only by the closest cooperation between police administrators of the various cities and governments of states and nations that we can hope to achieve results, if the warfare declared by society against the criminal is to be ended. It is also necessary to have the support and sympathy of the great civic organizations, boards of trade, merchants' associations, Rotary and kindred organizations, and, indeed, the support and cooperation of all law-abiding citizens in order that lawlessness be vigorously suppressed and this and other countries be made a place of contentment, prosperous and safe for all citizens and the stranger within our gates, irrespective of color, creed, or nationality. The home must be restored to its position of family life if juvenile delinquency is openly to be met."

The Association went on record calling upon every individual member "to do everything in his power to improve by counsel, and through every agency that can assist, the up-building of homes, so that the character of our future citizens shall reflect credit not only on themselves but on this organization."

Three women appeared as speakers at the convention. One was Mrs. Mina C. VanWinkle, of Washington, D. C., Director of the Woman's Bureau, a public police service there, and President of the International Association of Policewomen. She said that there are now 500 policewomen in 175 cities of the United States. She reported that Cleveland is building a bureau "which has won the respect of its citizens and is regarded as a model by other cities. A bureau is being rebuilt in Indianapolis. Pittsburgh is making room for 15 more policewomen, and Des Moines has a new bureau. Numerous other cities hope to fall in line this fall." Mrs. Mabel Rockwell, of the Chicago Police Department, and Mrs. Fannibelle Sutherland, Police Judge, of Paris, Ky., were the other women speakers.

Numerous exhibits were shown by concerns manufacturing police equipment.

THE NEW STATE CAPITOL AT LINCOLN, NEBR.

A Worthy Public Building

A STATE capitol should express the fundamental principles, the attainments, the activities, and the aspirations of the united people of the commonwealth. It should be a substantial evidence of civic pride and power.

Such is the new Capitol in Lincoln, Nebraska—a monument to the pioneers who tilled the fertile Nebraska plains. It rises from the prairie with simple dignity dependent on the harmonious combination of vertical and horizontal lines and on the symmetrical mass of the central tower, 400 feet high above the two-story, well-proportioned rectangular base, and typifies the triumph of realized ideals that sprang from the level plains. This design expresses the original, vivid conception of the architect, Bertram Grosvenor Goodhue, and is distinctively American.

A great archway forms the main entrance to the building, facing north. A terrace, 20 feet wide, gives access to the second, or main, floor, and extends completely around the building on top of the first outer story. The entrances proper open into the first floor, on each side of which stairways lead up to the terrace. The main part of the interior is planned for the efficient transaction of affairs of state and for the preservation of state records, and includes a number of stately halls and rooms. As an office building, it is both convenient and economical of space. A corridor, with offices on both sides, extends around the building on the inside. The departments are grouped together. Four large courts give natural light to the inside offices.

The eighteen great pictures in stone on the exterior of the building relate the story of the progress of the human race from the time the law was given to Moses, to the drafting of the Constitution and the admission of Nebraska to statehood. Symbols and inscriptions in various places remind citizens and officials of the pioneer days, the buffalo, and the Indian corn, and of the sources of learning and the records of experience. The decorations in the vestibule and its dome symbolize the natural and agricultural wealth of the state.

A room under the dome of the tower proper is to be set aside for war trophies and insignia in memory of the Nebraska heroes who have participated in the wars of the United States. A quotation from Lincoln's Second Inaugural is to be inscribed around the walls of this room.

A most interesting illustrated pamphlet has been published and copyrighted by the Nebraska State Capitol Commission, describing in considerable detail this notable public building. It is obtainable from the Commission at Lincoln.

Durability and Economy

60-Inch Swath — 10 Acres a Day

THE Coldwell Model "L" Motor Lawn Mower and Roller is an extremely flexible machine which mows and rolls simultaneously. Simple and easy to operate, park superintendents particularly recommend its excellent performance around flower beds and along walks and borders. Without the gang units, it mows and rolls a 25 inch swath. With the gang units, it's cutting swath is increased to 60 inches, enabling it to complete 10 acres a day, on one gallon of gasoline.

Cutter knives and full width traction roller are each independently driven direct from the motor with separate clutch controls. Full floating cutter unit readily conforms to the uneven surface of the ground giving smooth, velvety cut. The light, gentle rolling with each mowing also tends to aid an even growth. May we have our nearest dealer demonstrate on your grounds—at no expense to you, of course?

The Electric Mower For Boulevard Parkways

"As easy to operate as a vacuum cleaner." Propels itself and mows as it goes. Connects to any electric outlet on either alternating or direct current. Cuts a 21 inch swath—¼ acre an hour. Automatic friction reel keeps wire always taut and out of the way of the machine and the operator. Mower by Coldwell—Motor by General Electric—Timken Tapered Roller Bearings. Especially useful for small plots, boulevard parkways, etc. To interested executives we will be pleased, upon request, to send complete detailed information or, better still, ask your local Coldwell dealer to show it to you in action.

SINCE 1862

COLDWELL

DEPENDABLE LAWN MOWERS

Hand . Horse . Gasoline . Electric

COLDWELL LAWN MOWER COMPANY, NEWBURGH, N. Y., U. S. A.

When writing to Advertisers please mention THE AMERICAN CITY—Thank you.

Homicide Rates Continue to Mount

ACCORDING to the annual survey of the homicide rates of the larger American cities conducted by Frederick L. Hoffman, LL. D., Consulting Statistician of the Prudential Insurance Company of America, our murder rate for 1925 is the worst we have thus far experienced. Dr. Hoffman's analysis of these statistics appears in *The Spectator* of New York for April 1. His article is accompanied with a table giving the homicide rate in 121 American cities for 1925. There is also published a "Consolidated Return of Deaths from Homicide in 28 American Cities 1900-1925" from which the following figures are taken:

Year	Population	Homicides	Rate per 100,000 Population
1900.....	11,981,034	609	5.1
1910.....	16,873,233	1,365	8.1
1920.....	20,571,897	1,756	8.5
1921.....	20,588,770	1,910	9.3
1922.....	20,921,238	1,877	9.0
1923.....	21,274,706	2,176	10.2
1924..	21,445,413	2,219	10.3
1925.....	21,495,140	2,366	11.0

What Can Be Done About It?

In the concluding paragraphs of his article Dr. Hoffman says:

"Numerous crimes commissions have been organized to deal with the situation, but law enforcement is essentially a matter of government concern and not of private enterprise, however commendable. The work of the Cleveland Crimes Commission, which, in some respects, is one of the best in the country, has not been able to stem the rising tide of murder in this community. All information collected by crimes commissions clearly proves that there is unjustifiable delay in trials and unjustifiable leniency toward offenders. What we need as much as anything else in this country is speedier and more drastic justice as a wholesome check upon our criminal tendencies. We must also realize clearly that crime today represents a decidedly higher type of intelligence than formerly, in that in many directions it is thoroughly organized as a paying business pursuit.

"I have on previous occasions touched upon the question of capital punishment. Extended consideration of the subject, including personal participation in two electrocutions, have convinced me that since the death penalty will not be enforced except in rare occasions, it is much better to do away with it entirely. In New York State during the ten years ending with 1924 there have been 4,785 deaths due to homicide, while there have been only 113 electrocutions. During the first five years of the period there were 2,197 deaths from homicide with 49 electrocutions, while during the last five years there were 2,588 deaths from homicide and 64 electrocutions. During 1925 only there were 526 deaths from homicide and four electrocutions. Unless the death penalty is enforced and made to apply in a decidedly larger number of cases, it is obviously an obsolete law which it would be much better to do away with.

"Finally, it may be said that there is much need of more extended and dispassionate but thoroughly qualified research studies of crime. Some admirable results of investigation along this line have recently been published by the Municipal Court of Chicago, with particular reference to heredity. In its true significance the murder trend in this country in its relation to the development of hereditary traits is scarcely realized. But it is probably not going too far to say that we have 100,000 murderers at large or in prisons, of whom many are the fathers and mothers of children who bear the suggestive influence of a criminal experience upon their character. The 12,000 victims represent probably not less than 60,000 persons more or less immediately affected by homicidal crimes. The extended publicity given to many murder trials and the daily chronicle of murderous occurrences must necessarily have its effect upon our national life and character. It is obviously the duty of the Federal and the several state governments to take the present situation decidedly more seriously than is generally the case.

"I may also re-emphasize my suggestion, for many years, that drastic steps should be taken everywhere to curtail the sale and possession of firearms. The sale of such dangerous weapons through mail order houses should be prohibited by a Federal law. The possession of such weapons should not be permissible without authority from the local police. It may also be said in this connection that what we are urgently in need of is more adequate police protection everywhere, while the commendable action of certain states in establishing a state police should be followed by all the states. Life insurance companies pay heavily for the present reign of lawlessness, and the same applies to burglary and fidelity insurance.

Department of Correction to Undertake Campaign of Crime Prevention

COMMISSIONER SANFORD BATES, of the Massachusetts Department of Correction, announces the formation of an Advisory Council on Crime Prevention, made up of distinguished and representative men and women of the Commonwealth. In a statement accompanying this announcement Commissioner Bates says:

"Out of the conflicting opinions and advice in regard to the crime situation one fact seems to stand out—the most permanent, hopeful and protective remedy for our crime situation is to prevent the development of conditions which conduce toward criminal action.

"Public departments of health are now concentrating upon the problem of prevention of disease in children and adults. The Department of Mental Diseases, faced with the problem of the unlimited care of those already insane, has established a Bureau of Mental Hygiene with the idea of stopping the supply of mentally defective people at the source.

"For many years the traditional treatment of

for Economical Transportation

CHEVROLET

Now—Chevrolet builds Trucks Complete with Bodies!

In addition to the world-famous dependability and low operating costs that have swept Chevrolet trucks to record-breaking heights of popularity, Chevrolet now offers truck bodies of Chevrolet design and construction to meet the public demand for a *complete* Chevrolet-built commercial unit.

As a result of this new manufacturing policy, commercial car buyers can now obtain a chassis and body, engineered as a complete unit and sold as a complete unit at a single unit price. In addition, they enjoy all the advantages of the durability, ruggedness and strength for which the Chevrolet One-ton Truck Chassis is famous and the fine appearance of quality-built bodies, whose cabs afford a new order of driver comfort and protection.

These new Chevrolet bodies offer numerous features, heretofore available only on passenger cars, such as: extra wide sedan-type doors, double ventilating windshield, plate glass windows with Ternstedt regulators, conveniently located instrument panel, durable leather upholstery, deep comfortable cushions, and lustrous, lasting Duco finish in Biscay Green.

Renowned for sturdy design and staunch construction, these improvements still further emphasize the remarkable value which has made Chevrolet Trucks the choice of so many business men the world over.

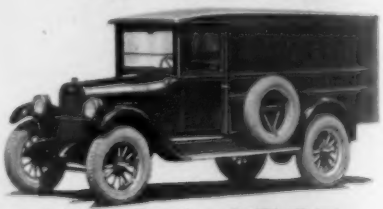
CHEVROLET MOTOR COMPANY
DETROIT, MICHIGAN
Division of General Motors Corporation

1-Ton Truck (Chassis only) $495

½-Ton Truck (Chassis only) $375

1-Ton Truck Stake Body $680
Complete, f. o. b. Flint, Mich.

1-Ton Truck Grain Body $680
Complete, f. o. b. Flint, Mich.



1-Ton Truck Panel Body $755
Complete, f. o. b. Flint, Mich.

1-Ton Truck with cab only $610
f. o. b. Flint, Mich.

World's Lowest Priced Gear-shift Trucks

crime and criminals has been to shut up men in institutions after their crimes have been committed. Perhaps this has been the best expedient which society could employ and no doubt others were deterred from crime as a result of it; but this procedure costs money and it does not seem to permanently remedy the situation or prevent the commission of other crimes. We cannot go on indefinitely building institutions for the housing of convicts. A better way to protect the public is to stop crime before it is committed.

"A few private agencies have in some measure realized the importance of crime prevention. So far as is known, no public penal department has attempted to organize sentiment along these lines.

"Many loopholes in the criminal law have been plugged up by the action of the present Legislature, and the Department of Correction feels that this is a logical time to emphasize the fundamental need of crime prevention.

"From the excellent material gathered in the shape of individual histories of criminals by the Department of Mental Diseases under Chap. 304 of the Acts of 1924, and a study and analysis of the same, many sound principles of crime prevention should be deduced.

"With this idea in mind, the Advisory Council have agreed to consult with the Department of Correction on this matter and begin the long and difficult work of mobilizing public sentiment in a direction away from lawlessness and towards law obedience and good citizenship. In the same way that health propaganda can overcome or postpone the menace of sickness and death, so can the sinister influences of many of our present-day tendencies which lead toward crime be inevitably overcome or at least combated."

EDITORIAL NOTE.—Important recent publications on crime and criminals include a group of articles in the "Survey Graphic" for March, 1926, on Crime and Its Cure; the May, 1926, number of the Annals of the American Academy of Political and Social Science, a special issue devoted to Modern Crime: Its Prevention and Punishment; and "Curing the Criminal," a treatise on the philosophy and practices of modern correctional methods, by Jesse O. Stutsman (418 pp.—The Macmillan Company, 1926.)

Essentials of an Effective Prison System

To Make Prisons Produce

What are the necessary elements of a prison system that might be effective? They are many; one can indicate only those which are outstanding as elements of primary importance. Among them are:

1. A new purpose in the prison: reform, not punishment; training, not simply restraining; good citizens, not merely good prisoners.

2. A new type of prison official, not simply a jailer, but a man fitted to direct a great human reclamation project.

3. Complete divorce of prisons and prison officials from politics.

4. Complete, not partial, abandonment of the old repressive system and the rigorous punishments that are a part of it.

5. A new type of prison plant, designed not merely to keep prisoners from escaping but to make possible education in the broadest sense. In many states this will mean a new location with space for farm work and other outdoor activities. The present very expensive type of cell-block, built on the assumption that practically all the population will escape unless heavily barred and walled in, can be largely replaced by more normal living quarters. The present type of construction, at great cost to the state, imposes on all the inmates restraint which only a minority need.

6. A system of discipline which will encourage self-control, and which will strengthen character, not merely produce good conduct in prison.

7. Community organization of the inmates in order that they may learn to meet the responsibilities of citizenship by practising citizenship in a restricted community, controlled and tutored by capable officials.

8. An educational system providing instruction in ordinary school subjects for those who need it, and trade education in the shops and in trade schools; both types of education to be under able teachers following the methods of successful adult education outside.

9. Religious work of the highest and most sincere type, directed by men of unusual conviction, personality and training.

10. Industries selected and operated primarily for their vocational training value and secondarily for their profit-making possibilities (the two are not inconsistent) with modern shops and machinery, so that men may learn to meet the conditions of outside industry. A producing, sales, and purchasing organization like those of private corporations, to lessen the burden on the tax-payer. Reasonable wages paid inmates, to make the industries more productive, to encourage habits of industry, foster self-respect, and help meet the problem of the dependent.

11. Use of large numbers of prisoners in farm work, road work and other outdoor occupations.

12. A health program maintaining a high sanitary standard, furnishing a healthful diet, employing corrective surgery, improving mental and physical health by sufficient outdoor exercise and wholesome indoor recreation, and supplying health education.

13. The use of mental tests and psychiatry and their full application, particularly to the problems of segregating the mentally unfit, work assignment, education, discipline, and discharge or parole.

14. The passage of indefinite sentence laws, either replacing or supplementing the present indeterminate sentence laws, so that prisoners will be kept in confinement until they are demonstrably fit for release.

15. Strengthening of the parole system and the appointment of sufficient agents to ensure thorough follow-up work and after-care of paroled prisoners.

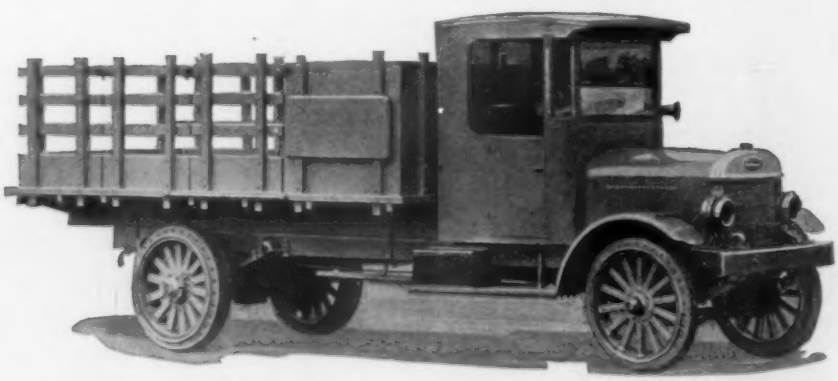
REVIEWING CONDITIONS AS HE FOUND THEM IN AMERICAN PRISONS AND ESTIMATING THEIR EFFECT ON THE CONTINUANCE OF CRIME, AUSTIN H. MacCORMICK, FIELD SECRETARY OF THE NATIONAL SOCIETY FOR PENAL INFORMATION, PRESENTS, IN A RECENT ISSUE OF THE SURVEY, THIS SUMMARY OF WHAT HE BELIEVES TO BE THE MOST ESSENTIAL COMPONENTS OF AN EFFECTIVE PRISON SYSTEM

Additions to Autocar Line of Trucks have the Engine in Front

THE Autocar Company is now manufacturing trucks of conventional design with the engine out in front in addition to its well-established line of "engine-under-the-seat" motor trucks which it will continue to make, recommend and sell.

The Type "C" models (engine in front), duplicate and supplement the present line of Autocar trucks. They have the same 4-cylinder engines, the same transmission, the same rear axle—entirely manufactured in the Autocar Factory—and are sold at the same prices.

The Autocar Company,
ESTABLISHED 1897
Ardmore, Pa.
Branches in 50 cities



When writing to Advertisers please mention THE AMERICAN CITY—Thank you.

Text for a Uniform Traffic Ordinance

To Regulate the Use, by Vehicles, of the Public Highways Within Municipal Limits

AN ORDINANCE to regulate the use, by vehicles, of the public highways within the (city or village of .....) and to repeal ordinance Number ..... and all other ordinances and sections of ordinances in conflict herewith.

IT IS ORDAINED BY THE PEOPLE OF THE (CITY OR VILLAGE) OF .....

Part I

GENERAL PROVISIONS

Shall Obey Provisions and Orders

SECTION 1. This ordinance is adopted in the interest of public safety and convenience and is designed to promote the general peace, health, safety, welfare and good government of the (city or village of .....). Every person, firm or corporation shall comply with, observe, and obey, when applicable to him or it, all the provisions, requirements and regulations contained herein and the regulations and orders of the Chief of Police adopted or issued in pursuance hereof.

Penalty

SECTION 2. Any person, firm or corporation who violates or fails to comply with any provision of this ordinance or any regulation or order of the Chief of Police, adopted or issued in pursuance hereof, shall be guilty of a misdemeanor and, upon conviction, be fined not more than ..... or be imprisoned for a period not to exceed ninety days, or to both such fine and imprisonment in the discretion of the Court.

Provisions Severable

SECTION 3. This ordinance and the various parts, sections and clauses are hereby declared to be severable. If any part, section or clause is adjudged unconstitutional or invalid, it is hereby provided that the balance of the ordinance shall not be affected thereby.

Definitions

SECTION 4. For the purposes of this ordinance, except where the context requires a different meaning, the following words shall be deemed to have the following meanings:

Highway: Any street, alley, avenue, boulevard, or other road, square or public place open to public travel.

Roadway: That part of the street set apart for the use of vehicles, and usually bounded, on paved streets, by curbstones.

Fire Route: Any street so designated by the Chief of Police, by rule, upon certification to him by the Fire Chief that such street is normally used by fire apparatus in attending fires.

Crosswalk: That part of the roadway connecting sidewalks at or near street intersections and at such other places as may be indicated by lines drawn upon the pavement by the Department of Police.

Safety Zone: That part of the roadway, adjacent to street-car rails, designated for the accommodation of persons waiting for or alighting from street cars, and other places, within the roadway, designated and marked by the Police Department as refuge aisles or zones for pedestrians.

One-Way Traffic: Vehicular traffic restricted to move in one direction only.

One-Way Streets: A street where one-way traffic is required.

Parking: The standing of a vehicle upon a street whether accompanied or unaccompanied by an operator.

Double-Parking: The standing of a vehicle upon a street outside of another vehicle which is parked at the curb.

Operator: Any person driving or operating a vehicle.

Chief: Chief of Police, Marshal, Commissioner of Police or head of any police body, or other properly constituted authority.

Department: Department of Police.

Limit Lines: Chalk, paint, whitewash or similar lines marked upon the pavement or sidewalk to indicate directions and regulations to be observed by pedestrians and others.

Day - Time: Time between one hour before sunrise and one hour after sunset.

Night-Time: Time between one hour after sunset and one hour before sunrise.

A Commercial Vehicle: A commercial vehicle as used in this ordinance shall mean and include all motor vehicles used for transportation of passengers for hire and those constructed or used for transportation of goods, wares or merchandise.

Whenever any regulation contained herein is imposed upon a "vehicle," it shall be construed to refer to the operator thereof, when such reference would be applicable.

Vehicle: A vehicle is any carriage or conveyance running on land either on wheels or rollers, railroad locomotives, cars, and street cars excepted.

Motor Vehicle: The term "motor vehicle" as used in this ordinance shall include all vehicles propelled on the public highways of this state by mechanical power, except traction engines, road rollers, and such vehicles as can run only on rails or tracks.

Council: A municipal legislative body.

Signal: A visible sign given by hand or by mechanical device, or by an automatic signal.

Sign: Any device bearing printed instructions which advise the public of any traffic regulation.

Police Shall Control

SECTION 5. The Chief shall enforce the provisions of this ordinance and the rules adopted by him hereunder. Subject to provisions hereof, it shall be the duty of the department to direct and control traffic of vehicles and pedestrians.

Interference with Signs Prohibited

SECTION 6. No person shall wilfully move, destroy, deface, change the wording of, or otherwise interfere with any sign erected or established by the Department or by the authorities thereof. Except as hereinafter provided, no person shall establish, erect, or maintain a sign, standard, or limit line in imitation of one ordained by police authority.

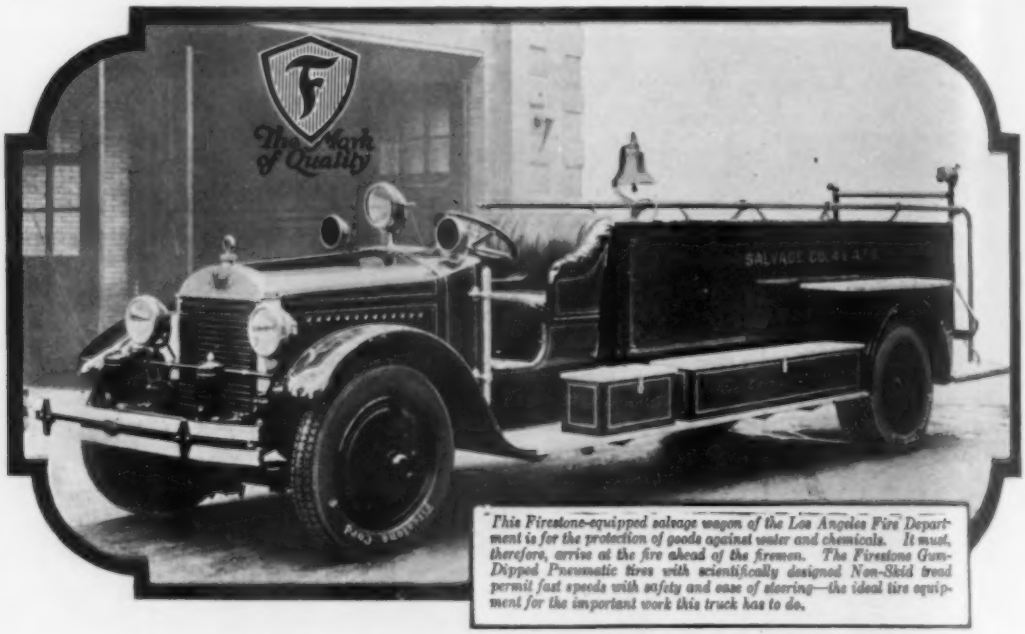
Action by Michigan Municipalities

Of the 431 incorporated municipalities in Michigan, more than 150 have already adopted this uniform traffic ordinance, the text of which was approved in October last by a state-wide conference of city officials, chiefs of police, and representatives of chambers of commerce, automobile clubs, safety councils, real estate boards, and other interested groups.

The movement for the preparation and adoption of this uniform ordinance has been furthered by the Detroit Automobile Club through its Safety and Traffic Division. Careful consideration was given by the drafting committee to the recommendations of the National Conference on Street and Highway Safety.

The ordinance is here published in full, as an aid to municipalities and traffic conferences in other states in the preparation of model ordinances. In many states modifications will, of course, be necessary to comply with statutes which differ from those of the state of Michigan.

AMERICANS SHOULD PRODUCE THEIR OWN RUBBER... Harvey S. Firestone



This Firestone-equipped salvage wagon of the Los Angeles Fire Department is for the protection of goods against water and chemicals. It must, therefore, arrive at the fire ahead of the firemen. The Firestone Gum-Dipped Pneumatic tires with scientifically designed Non-Skid tread permit fast speeds with safety and ease of steering—the ideal tire equipment for the important work this truck has to do.

Arriving Ahead of the Firemen On Firestone Gum-Dipped Pneumatics

It requires a scientifically designed pneumatic tire, with a real Non-Skid tread that will grip the road without skidding when fire apparatus is weaving in and out of traffic jams—dodging vehicles and pedestrians—and when making sudden spurts ahead or quick stops.

The Firestone Gum-Dipped Pneumatic for fire apparatus is that kind of a tire. It not only has a specially designed tread but the carcass is built of cords which have been Gum-Dipped—the extra Firestone process which thoroughly saturates and impregnates every fiber of every cord with rubber. Gum-Dipping gives greater strength and endurance to Firestone Gum-Dipped Pneumatics, minimizes friction and heat, reduces tire troubles to a minimum and builds thousands of extra miles.

The nearest Firestone Dealer is in a position to save fire chiefs and commissioners money on good tires and good service—see him.

MOST MILES PER DOLLAR

Firestone

GUM-DIPPED PNEUMATICS FOR FIRE APPARATUS

Changing Signs

SECTION 7. When any regulation is amended or repealed, the sign evidencing the existence of the same shall be correspondingly changed or removed by the Department.

Use of Semaphores, etc., Authorized

SECTION 8. To assist in the direction and handling of traffic, the Department may install and use semaphores, discs, "crows' nests" so-called, raised safety zones, and other signals and devices which to the Chief may seem advisable.

Signs—Police Control

SECTION 9. Traffic shall be directed by officers of the Department by voice, hand, or mechanical signal or shall be directed by automatic signal; but such officers or signal shall not prevent anyone from proceeding or standing in the manner required or permitted by law. Provided, however, in case of a fire, or other emergency, or in case of a parade or other concourse of people, traffic may be directed as conditions may require, notwithstanding the provisions of any ordinance. It shall be a violation of this ordinance for any person to disobey or refuse to comply with any lawful order, signal or direction of a police officer, or any signal from an automatic signaling device, pertaining to the control of traffic.

Closing Streets—Diverting Traffic

SECTION 10. The Chief shall have authority, when he deems it in the interest of public safety or convenience, temporarily to close any street, alley, or portion of the same to vehicular or foot traffic or to divert such traffic therefrom.

Publishing and Posting Ordinances

SECTION 11. The Chief shall arrange for the printing of this ordinance in pamphlet form for free public distribution. He may also print, in poster form, the entire ordinance or excerpts therefrom or a synopsis thereof. It shall be the duty of the owner and of the operator of every public garage, taxicab company, or other place where vehicles for hire are kept, to keep posted in a prominent place such poster as the Chief shall designate.

Accidents—Shall Promptly Report to Police

SECTION 12. Every person driving or operating a locomotive, street car, or other vehicle involved in a grade-crossing accident or an accident which causes injury to any person or which results in a vehicle becoming so disabled as to be incapable of being propelled in its usual manner, shall give immediate notice and make full report thereof to the Police Department upon blanks furnished by the Department upon application to it. If a driver or operator of a vehicle involved in an accident is so incapacitated as to be unable to make such report, it shall be the duty of every other occupant of such vehicle to see that such report is made. In the case of accident, the Department, if it deems the public interest requires it, shall cause an investigation to be made and shall give proper and sufficient notice of the time and place of holding such investigation. The Department shall tabulate all data, statistics, and other pertinent information obtained through the operation of this section and make reports of the same to the (Village or City Council or Commission) with recommendation as to means and methods whereby such accidents may be averted or minimized. All records of accidents at railroad grade crossings shall be separated from other street traffic accident records. The failure to make a report required by this section shall not affect civil rights or remedies.

Part II

TRAFFIC REGULATIONS

Speeding

SECTION 1. Vehicles shall be driven at a reasonable rate of speed according to traffic conditions and in no event shall exceed 15 miles per hour in business sections or 20 miles per hour in residential districts; provided, that no vehicle shall be driven in an alley faster than 7 miles per hour.

Reckless Driving

SECTION 2. Reckless driving is defined as the operation of any vehicle on the public highways in such a manner as to endanger the life or limb of any person or the safety of any property.

Leaving Scene of Accident

SECTION 3. In case of an accident to persons or property upon any public highway, due to the operation of any vehicle, the person operating such vehicle shall stop and give such reasonable assistance as can be given, and shall, upon request of the person injured or any other person, give such person his name and address and the number of his operator's license. If the operator of such vehicle is not the owner thereof, said operator shall give the name and address of the owner of such vehicle, together with the registered number thereof.

Operation of Vehicles Under the Influence of Intoxicating Liquor or Stupefying Drugs

SECTION 4. It shall be unlawful for any person under the influence of intoxicating liquor or any stupefying drug to drive, operate, or have in charge any vehicle upon any public highway. It shall also be unlawful for the owner of any vehicle, or any person having such vehicle in charge or in control, to authorize or knowingly allow the same to be driven or operated by any person under the influence of intoxicating liquor or any stupefying drug, upon any public highway.

SECTION 5. (a) Any person violating the provisions of the preceding section of this ordinance, shall for the first offense be guilty of a misdemeanor and, upon conviction thereof, shall be liable to a fine not less than $50.00 nor more than $100.00, or to imprisonment in the county jail for a term of not more than 90 days, or both such fine and imprisonment in the discretion of the Court.

(b) Any person violating the provisions of this section shall for a second or subsequent offense be guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine not exceeding ..... dollars or by imprisonment in the county jail not to exceed ....., or by both such fine and imprisonment in the discretion of the Court.

Lights

SECTION 6. (a) Every motor vehicle operated on the public highway shall be equipped with two white headlights of equal candlepower, capable of clearly lighting the highway at least 200 feet ahead. Electric headlights shall be equipped with either lenses or other device which will prevent glaring rays, or a dimming device which shall diminish or diffuse the light so that it will not interfere with the vision of the operator of an approaching vehicle. The electric headlights shall be dimmed on approaching another vehicle traveling in the opposite direction within a reasonable distance; provided, however, that motor vehicles equipped with acetylene headlights shall be deemed to have complied with the provisions of this act, anything to the contrary notwithstanding, when such headlights are fitted with 6-inch bright spherical mirrors, 5/8-foot burners and clear plain glass fronts, and nothing herein contained shall be considered as prohibiting the use of acetylene lighting systems on motor vehicles. Motor vehicles and trailers shall also have one rear red light visible, when lighted, for 200 feet behind such vehicle. Motorcycles shall be equipped with one headlight which shall be capable of clearly lighting the roadway at least 200 feet ahead, and a red light visible 200 feet to the rear.

(b) At night-time, any truck or trailer over 5 feet 6 inches in width, shall have a green light on the left side.

(c) One spotlight may be useful if placed not higher than the center of the windshield and so adjusted that the rays are always directed downward and directed to the right of such vehicle.

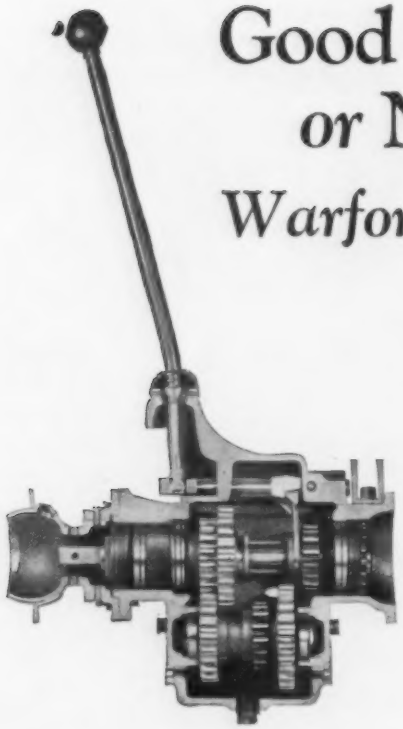
(d) All lights required by this section, except spotlights, shall be lighted while the vehicle is in operation upon the public highway from one hour after sunset to one hour before sunrise, and at such times as atmospheric conditions make it necessary.

(e) While motor vehicles are standing on the public highways in the night-time, they shall have displayed, toward the front, two white lights, and on the rear one red light, provided, however, a parking light may be used when mounted on the left rear fender of the motor vehicle showing a white light towards the front and a red warning light visible 200 feet toward the rear.

(f) All other vehicles except as herein provided, shall have one white light visible at least 100 feet from the front and rear.

Brakes

SECTION 7. Every motor vehicle operated upon the public highway shall be provided with service and emergency brakes, each of which shall be capable of locking both rear wheels.



Good Roads—Bad Roads *or* No Roads At All!

Warford Doubles Truck Profits

The peculiar advantage of the Warford Auxiliary Transmission over Ford Truck devices in general is that it is equally valuable under all conditions.

Each year in America hundreds of miles of new highway are paved. There are good roads from coast to coast, and from border to border. But in the vast meshes of this concrete network are countless miles of bed roads, sand, mud and short steep grades.

The truck must travel over both kinds of highway—profitably.

Because the Super Warford Transmission has six speeds, the Warford equipped Ford truck travels over pavement at passenger car speed with normal engine speed, and worms its way like a wartime tank through the heaviest going that ever a horse could get through.

When you consider that Warford provides this sort of performance with a *double load*, that it hauls two tons instead of one *anywhere* in less time, there can be no reason for considering further which truck to buy.

If you will ask the Ford dealer, he will be glad to show you what Warford does and how it does it. Warford also gives the Ford Truck power take-off facilities.

Ask the Distributor Nearest You—He Can Help You Increase Truck Sales

Albany, N. Y.	Foster-Warford Co.
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Buffalo, N. Y.	Foster-Warford Co.
Canton, Ohio	Dune-DeWees Co.
Charlotte, N. C.	Hall-Warford Co.
Chicago, Ill.	Sieg-Warford Co.
Columbia, S. C.	Warford Sales Co. of S. C.
Dallas, Texas	Houdaille-Polk Co.
Davenport, Iowa	The Sieg Company
Denver, Colo.	Motor Specialties Co.
Detroit, Mich.	Transmission Sales Co.
Haverhill, Mass.	Massachusetts Warford Co.
Idaho Falls, Idaho	Auto Parts Company
Indianapolis, Ind.,	Kenney Equipment Co.
Kansas City, Mo.	Warford-Western Co.
Lewiston, Me.	Maine-Warford Co.
Los Angeles, Cal.	Hammel Gerke Co.
Mansfield, La.	W. C. Nabors
Memphis, Tenn.	Wayne Spinks Co.
Morrisville, Vt.	McMahon Bros.
Philadelphia, Pa.,	Warford-Eastern Co.
Pittsburgh, Pa	Warford-Pittsburgh Co.
Portland, Ore.	Woodward Sales Co.
Richmond, Va.,	Baker Equipment Eng. Co.
Rockford, Ill.	Schacht Tuck Co.
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St. John, N. B.	J. H. Irving
Vancouver, B. C.	E. W. Jay
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Warford
PRODUCTS

The Warford Corporation, 44 Whitehall St., New York City

Neither the Warford Corporation nor its manufacturers has any connection whatsoever with any company manufacturing motor cars

Warnings

SECTION 8. (a) All motor vehicles shall be equipped with suitable devices for audible signals.

(b) No exhaust whistle, siren, or other warning device, similar to those used by fire and police vehicles, and no cutouts, shall be used by any vehicle on the public highway.

SECTION 9. (a) Any vehicle overtaking and passing another shall pass to the left side of the overtaken vehicle and not pull over to the right until clear thereof.

(b) All vehicles meeting shall pass each other to the right.

(c) All slow-moving vehicles shall keep as near the right curb as practicable.

(d) All vehicles about to make a right-hand turn shall keep as near the right curb as practicable.

(e) All vehicles about to make a left-hand turn shall keep as near the center of the streets as practicable, when approaching the street intersection.

(f) All vehicles shall pass to the right of a street car when going in the same direction as such street car; provided, that a vehicle proceeding in the proper direction upon a one-way street may pass to the left of a street car going in the same direction.

(g) A right-hand turn may be made at all times when proceeding with traffic, providing the other provisions of this ordinance are obeyed. A right-hand turn may be made against the stop signal, providing the vehicle is brought to a complete stop before making the turn.

Street Cars—Near-Side Stop

SECTION 10. (a) Street cars shall stop on the near side of intersecting streets for the purpose of taking on or discharging passengers: provided, that, when, in the opinion of the Chief (Commission, Common Council, etc.), a near-side stop would tend to cause danger, inconvenience, or discomfort to passengers at a particular intersection, he may order the far-side stop at such intersection, and upon notice of such order the street-car company or municipality operating such cars, its agents and employees shall comply with the same and shall mark in a manner satisfactory to the Department the location of the stopping places of such cars.

(b) Street cars shall come to a complete stop before crossing a boulevard. The Chief (Commission, Common Council, etc.) may designate other streets at which cars shall stop before crossing, and upon notice of such regulation being served upon the company or municipality operating such street cars, it shall, through its agents and employees, thereafter comply with the same.

(c) The Chief shall keep an official copy of all orders served upon any operator of street-railway cars, which copy shall be available for public inspection.

Obstructing Street Cars Prohibited

(d) The driver of any vehicle proceeding upon a street-car track in front of a street car shall immediately turn out on a warning signal being given by the operator of the street car.

(e) Before starting a street car the motorman shall give timely warning by sounding the gong.

Vendor's Vehicles to Move on Request

SECTION 11. Hand- and foot-propelled conveyances, push-carts, and other similar wagons and conveyances shall comply with all regulations contained herein pertaining to vehicles in so far as the same are applicable to them. Any such cart, fruit-vending car, or other licensed wagon or stand used for selling nuts, candy, fruit, or other articles, shall, when standing in a place where parking of vehicles is allowed, move from such space upon the request of a police officer.

SECTION 12. It shall be unlawful for any person to drive a vehicle out of any alley or driveway onto the street or highway without bringing such vehicle to a complete stop before driving same across the sidewalk or the crossing intersecting the entrance to said alley or driveway.

SECTION 13. It shall be deemed a violation of this ordinance for any person in charge or control of any vehicle to make, with such vehicle or any device connected therewith, any excessive noise to annoy the public, or unnecessarily to race his motor while running idle, or to open the muffler on any vehicle, or to permit such vehicle or any device thereon to emit an unreasonable quantity of smoke or noxious gases or vapor.

SECTION 14. (a) When vehicles approach an intersection of a street which is marked as an extension of a state trunk line highway and any other street at the same time, the vehicle proceeding on the street which is an extension of a state trunk line highway shall have the right of way.

(b) When vehicles approach an intersection of two or more streets which are marked as extensions of state trunk line highways at the same time, the vehicle approaching on the right of the driver shall have the right of way.

(c) When vehicles approach an intersection of two or more streets other than extensions of state trunk lines, at the same time, the vehicle approaching on the driver's right shall have the right of way; provided, that the Council may designate "Stop" streets on which traffic shall have the right of way at all intersections except those of state trunk line highways.

Keep to Right of Divided Driveways

SECTION 15. On any avenue, street, or boulevard divided longitudinally by a parkway, walk, sunken way, or viaduct, vehicles shall keep to the right of such division.

Crossing Car Tracks Before Car Passes Path of Vehicle Prohibited

SECTION 16. (a) When a street car has started to make a crossing of any street, no driver of any vehicle shall attempt to cross the street-railway tracks on said street before the street car has entirely crossed the intended path of such vehicle.

Stop Behind Street Cars Loading or Unloading—Exceptions

(b) When a street car has stopped, or is about to stop, for the purpose of taking on or discharging passengers, the driver of any vehicle which is being driven on the same street and in the same direction as such street car, and which has not as yet passed all doors of such street car or cars, shall bring his vehicle to a complete stop and shall remain standing until such street car has finished loading or unloading its passengers; provided, that a vehicle which at the time such car stops has not as yet passed the rear of such car, shall stop as near the rear thereof as possible; provided, further, that the provisions of this section shall not apply to street intersections where traffic officers or automatic signals are stationed, nor at such other intersections as have been properly designated by the Department of Police; (Commission, Common Council, etc.): provided, further, that the provisions of this section shall not apply to street intersections where there is a raised or a protected safety zone.

Driving Through Occupied Safety Zones Unlawful

SECTION 17. It shall be unlawful for any person to drive a vehicle upon or through any safety zone when said zone is occupied or about to be occupied by any person or persons.

SECTION 18. No vehicle shall cross a street upon which there is a street-car track; nor turn any corner at a rate of speed exceeding ten miles per hour.

SECTION 19. A driver of a vehicle shall not turn to the left for the purpose of leaving the street upon which his vehicle is proceeding unless, at the time, such vehicle is as close to the center of the street as safety will permit.

The driver of a vehicle shall not turn nor attempt to

If Your State Has Not an Up-to-Date Motor Vehicle Act

it is important that, in addition to adopting a model traffic ordinance for your city, an effort be made to secure the adoption of needed state legislation.

In The Municipal Index for 1926 (pages 424-5), will be found an outline of the provisions of a Uniform Act Regulating the Operation of Vehicles on Highways. The full text of this act is obtainable from the National Conference on Street and Highway Safety, Department of Commerce, Washington, D. C., from which source can also be secured the text of a Uniform Motor Vehicle Registration and Certification of Title Act, and a Uniform Motor Vehicle Operators' and Chauffeurs' License Act.

A check-up will pay you—

DO you know exactly what your costs are for patching mixture? A check-up will pay you—will show you the big economies you can effect with the new, improved "Tarvia-KP."

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For many years "Tarvia-KP" has been recognized as the most practical and efficient patching material obtainable. It's good for every type of road, easy to handle and needs no special equipment. The new "Tarvia-KP" is the same 100% dependable material *plus* vastly increased binding strength.

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turn to the right for the purpose of leaving the street upon which he is proceeding unless he is as close to the right-hand curb as driving conditions will permit.

Signals—Turning and Stopping

SECTION 20. Before turning to the right or the left to leave a street, and before turning around or stopping thereon or before materially varying the course in which the vehicle is proceeding, the driver of a vehicle shall give a timely warning signal to other drivers by extending the arm beyond and outside of the vehicle, holding the same in a horizontal position for a sufficient time to apprise approaching drivers of vehicles of his intention to change his course or stop, as the case may be; provided, however, that in lieu of such signal, signals may be given by any mechanical or electrical device which conveys an intelligible warning to another driver approaching from the rear. In all cases the driver of a vehicle to whom such signal has been given, as required in this section, shall bring and keep his vehicle under such control as to be able to avoid an accident resulting from any misunderstanding of such signals, and shall in all cases heed any such warning as shall have been given him.

Standing Vehicles, Give Signal

SECTION 21. A standing vehicle about to start shall give moving vehicles the right of way, and the operator thereof shall give a timely and visible warning signal by extending the arm, as provided in the preceding section, before so starting; no vehicle shall start or pull away from the curb while a street car is passing abreast of such vehicle.

Parade or Procession

SECTION 22. (a) Permission for all parades must be obtained from the Chief, and he may designate the routes of said parades.

(b) No vehicle shall be driven through a parade or other procession except with the permission of a police officer.

Slowly Moving Vehicles Keep to Right Curb and Single File Only

SECTION 23. Slowly moving or heavily laden vehicles shall not be driven abreast upon any highway, but one must follow behind the other and keep as near to the right-hand curb as practicable.

Obstructing Street and Overloading Prohibited

SECTION 24. (a) No vehicle shall be allowed to remain upon or be driven through any highway so as to blockade or obstruct the said highway; and no vehicle shall be so overloaded that the horse or horses or motive power shall be unable to move it.

Remove Disabled or Stalled Vehicles Promptly

(b) Whenever a vehicle becomes stalled upon a street or when, because of damage or other reason, it cannot be moved by its own power and consequently blockades the street or interferes with the use of same by other vehicles, it shall be the duty of its owner and its operator to remove the same, by towing or otherwise within a reasonable time.

Loading or Unloading at Safety Zones Prohibited

SECTION 25. (a) Nothing contained in this ordinance nor any rule of the Chief shall be deemed to prohibit a vehicle from parking at the curb of any street while taking on or discharging passengers, freight, or merchandize, but no vehicle shall be parked nor shall take on or discharge merchandise or passengers between a safety zone and the curb nearest thereto at any time.

Parking in Alleys Is Prohibited

(b) Vehicles shall not park in public alleys; provided, that commercial vehicles may park in public alleys not longer than necessary to load and unload, and when so parked, such vehicles shall stand as close as possible to one side of such alley so as to permit other vehicles to pass.

Fire-Hydrant Restrictions

(c) No vehicle shall stop or remain standing at the curb in front of, or within 15 feet of, any fire-hydrant or fire-cistern. No vehicle shall park within 50 feet of the entrance to any fire-station. No vehicle shall follow any fire apparatus answering a call or park within four blocks of said apparatus when on duty at a fire.

Parking in Front of Entrance to Public Buildings, etc., Prohibited

(d) No vehicle shall be permitted to stand in front of the entrance of any theater, church, office building, public dance hall, club, private or public driveway, or building which is designated to be a building in which a large number of people are accustomed to gather, except for the purpose of stopping to take on or discharge passengers or merchandise.

Shipping Entrances—How Provided

(e) Special "no-parking" spaces may be provided and established by compliance with the following conditions: Any owner or occupant of a building adjacent to a street or alley, desiring a certain "no-parking" space immediately in front of a shipping entrance to such building, shall make application to the Chief of Police or other proper constituted authority, setting forth all relevant information and stating the number of feet desired for such purposes. The Chief shall have authority to grant or refuse such application at his discretion, or to grant the same with such restrictions or limitations as he may fix. In case such application is granted, the Chief shall issue to the applicant a permit or certificate setting forth the location of such "no-parking" space, the number of feet frontage fixed, and such other limitations as may be pertinent. Such permit may, at any time, be withdrawn or further limited by the Chief. To enforce the provisions of such permit, the holder of the same shall have the right to place "no-parking" signs on the sidewalk marking the limits of such "no-parking" space. Such signs shall be of the exact size, character, and description required by the Chief; but shall be provided at the expense of the holder of the permit, and shall bear the number of the permit issued by the Department. No vehicle shall be allowed to stop or remain standing in any such special "no-parking" space, except for the purpose of taking on or discharging merchandise or passengers.

(f) Except as hereinbefore provided, no person shall place or exhibit a sign or standard similar to those used by the Department upon any street or in any public place, or attempt by signs or written or printed instructions to regulate traffic or the parking of vehicles.

Unattended Vehicles, Except Commercial, Shall Be Locked

SECTION 26. No vehicle, except a commercial vehicle, shall be left standing at a curb unattended unless the operator shall first shut off the motor and lock the vehicle or some part thereof so as to prevent the starting and operation of the vehicle by an unauthorized person. No vehicle shall be locked in such a manner as to prevent it from being towed or moved; provided, that the failure to lock such vehicle shall not mitigate the offense of stealing the same, nor shall such failure be used to defeat a recovery in any civil action for the theft of any vehicle or for any other bearing in any civil action.

Crosswalks Shall Be Kept Clear

SECTION 27. No vehicle shall stop on any crosswalk in any such manner as to obstruct free passage upon all parts of such crosswalk.

Using Side Nearest Curb; Blocking Traffic Unlawful

SECTION 28. When practicable, merchandise and freight shall be discharged and loaded from the side of the vehicle nearest the curb. When such handling is impracticable because of the size of, or weight of, the packages of merchandise or freight, the vehicle may back to the curb, but it shall not stand at an angle which will interfere with the operation of street cars or other vehicles.

Horse-drawn Vehicles; Heads Near Curb

SECTION 29. When a horse-drawn vehicle is backed to the curb in pursuance of Section 28, the horses shall be turned in the direction in which the traffic is proceeding, with their heads at right angle to the vehicle.

Hitching to Vehicle Prohibited

SECTION 30. No person shall hitch or climb onto any moving vehicle either with or without the consent of its operator; provided, that this section shall not apply to the coupling of trailers or proper towing of other vehicles.

When Turning, Unlawful to Obstruct Traffic

SECTION 31. No person shall turn any vehicle around at any street intersection.

Backing Limit, 60 Feet. Helper to Precede Around Corner

SECTION 32. No vehicle shall be reversed or backed unless the driver shall first ascertain by observation that such operation can be safely made. No vehicle shall be backed without first giving an unmistakable warning signal to pedestrians and approaching vehicles, nor in any

Outshoveling 47 Snow Shovelers in a Direct Race

Barber-Greene's 10 yards in 90 seconds Licks Detroit Shovel Crew Badly

Last Winter the City of Detroit staged a snow removal race on Grand River Boulevard. On one side of the street 47 shovelers were lined up. Directly opposite, on the other side, was the Barber-Greene Snow Loader with its operator and two helpers.

The starting signal was given and the race began. But, it was over almost as soon as it started. The Barber-Greene walked away from the shovel gang so rapidly that there ceased to be even the semblance of a contest.

It is easy to see why this Barber-Greene outshoveled the 47 shovelers so handily. It has averaged 90 seconds for loading 10 cubic yards of snow into a single truck.

Such speed means more than winning races against 47 men.

It means that city streets are cleared many times faster than was possible with hand labor. It means lower costs to the city for the direct labor charge is cut to virtually nothing.

It means that the business arteries of the town or city are kept snow free, virtually all winter long—and that the huge trade and business losses that snow-storms incur are reduced tremendously.

Cities and towns of many different sizes are now using Barber-Greenes—with results similar to those being obtained in Detroit.

The actual figures and detailed information on how a number of these towns and cities are keeping their streets open all winter long are contained in our latest snow removal booklet. Send for a copy of "Modern Snow Removal."

Mr. Thompson, Superintendent of Detroit's streets was responsible for the snow loading race described on this page.

After a snow storm he sends out scrapers which put the snow in long windrows on each side of the street, about 10 feet away from the curb. The Barber-Greene then loads these windrows into trucks.

Mr. Thompson was recently re-elected to his second term on the efficiency record which he has established.

BARBER-GREENE COMPANY—*Representatives in 50 cities*—515 West Park Avenue, Aurora, Ill.

BARBER GREENE SNOW LOADERS

The Barber-Greene Snow Loader can be converted into a standard Barber-Greene Bucket Loader for summer work. The bucket loader loads any loose or semi-loose materials.

When writing to Advertisers please mention THE AMERICAN CITY—Thank you.

case shall it be backed a distance of more than 60 feet. No vehicle shall be backed around a corner at an intersection of streets or of a street and an alley unless preceded by a driver's helper to observe whether the road is clear and whether the backing may be safely made.

Fire and Police Vehicles Shall Have Right of Way

SECTION 33. All vehicles upon the approach of fire apparatus or vehicles driven by peace officers, upon the sounding of warning signal of such vehicles, shall take such precautions to clear the street so as not to interfere with the passage of such vehicles, and shall not closely follow such vehicles.

Position at Street Intersection

SECTION 34. At street intersections, where there is room for three parallel rows of vehicles, those turning to the right shall keep close to the right-hand curb, those turning to the left shall keep toward the center of the street, and those proceeding ahead shall keep in the center row between the two lines or rows of vehicles first mentioned.

Stop Only at Curb—Exceptions

SECTION 35. A vehicle shall not stop elsewhere than at the curb except in an emergency or to allow another vehicle or a pedestrian to cross in front of it or upon the signal of a traffic officer.

Use Side Nearest Curb

SECTION 36. So far as practicable, all persons shall alight from vehicles and board the same upon the side nearest to the curb.

Driver's View Shall Be Unobstructed

SECTION 37. Drivers shall have an unobstructed view to the rear of their vehicles by direct view or by mirror. Windshields in front of a driver shall be kept clear of snow and ice or opened so that the driver's view is unobstructed.

No stickers, cards, signs, or obstructions shall be posted upon windshields or rear window of any vehicle, except that one sign or sticker, not to exceed 2½ inches by 3½ inches, may be permitted at the extreme lower right hand corner of such windshields; provided, however, that this does not apply to vehicles in a funeral procession.

Width of Load, 8 Feet—Exceptions by Police Permit —Bumper

SECTION 38. (a) No bumper or other appliance shall extend beyond the maximum width of the vehicle proper.

(b) No load shall exceed 8 feet in width; provided, however, that any person, firm, or corporation desiring to make trips or movements of vehicles of more than 8 feet in width between two established points may make application to the Chief for permission so to do. The Chief may lay out a route in accordance with the state law.

Towing—One Vehicle—Line 16 Feet Limit, White Cloth —Lights

SECTION 39. No motor vehicle shall tow more than one other motor vehicle, nor more than two trailers, and the connection shall not be over 16 feet long, and a white cloth shall be fastened to the tow line so as to make it plainly discernible. Each vehicle shall separately display thereon the lights required on vehicles of the class to which it belongs.

Total 60 Feet; Limit-Exceptions

SECTION 40. (a) No truck or tractor with trailers shall exceed 60 feet in length; provided, however, a greater length may be permitted when the load consists of poles, structural iron, scenery, or other articles which, from their natures, can not be shortened.

(b) Trailers must track within 6 inches of the preceding vehicle.

Couplings—Two Adequate Chains

(c) Trailers shall be attached to the preceding vehicle by means of a suitable coupling. Two safety chains, one on each side of the coupling, must also be used. Both chains must be attached to the same part of the chassis as is the coupling. Each chain must be of sufficient strength to pull the trailer or trailers attached to it when it is loaded to maximum capacity.

SECTION 41. Whenever any vehicle is loaded with material projecting 3 feet or more from the end of such vehicle, a red cloth shall be fastened at the end of such projecting material, and at night-time a red light.

SECTION 42. Not more than three persons shall occupy the front or driver's seat of a motor vehicle, and no person, adult or minor, shall be seated in the lap of the driver nor shall the driver be seated in the lap of a person when the motor vehicle is in motion.

SECTION 43. Ordinance number.....of the city of....., and all other ordinances or sections of ordinances in conflict herewith, are hereby repealed.

Other Drafts of Model Traffic Ordinances

Two other drafts of proposed uniform traffic ordinances which have recently come to the attention of The American City are:

Proposed Uniform Traffic Ordinance for Southern California Cities, obtainable from the Automobile Club of Southern California, of Los Angeles.

Uniform Traffic Ordinance for Colorado Cities, submitted as a report of the legislative committee of the Colorado Municipal League at the recent annual convention of that organization and published in full in "Colorado Municipalities" for June, 1926. Copies are obtainable from the Colorado Municipal League, University of Colorado, Boulder.

The 2-Range Transmission—*an exclusive GMC feature*—develops 30% more pulling power than is possible with the same size engine and the usual type of transmission. It also effects great fuel savings by allowing all work to be done with the engine operating at its highest efficiency. And this is only one of the reasons for Big Brute's greater Power—Endurance—and Economy.

GMC Big Brute

Promised much—It is delivering more

A few months ago when General Motors announced the arrival of Big Brute as a "*truck such as men had never seen before*" the industrial and commercial world was amazed. Never before had any truck manufacturer dared to make the promises which were made for Big Brute.

Yet, all over the country and in every line of business, Big Brute is not only delivering all that it promised—**but more.**

Letters by hundreds tell amazing stories of its ability, and say, without any qualification, that Big Brute *is* a truck with which no other can compare and is performing in a manner no other truck ever approached.

Yet this is not surprising. For Big Brute is the result of 24 years successful truck building, plus all the great engineering and manufacturing facilities of General Motors. It is, in fact, the culmination of everything learned since motor trucks were first built. And so it is only natural that it should actually be a truck without "bugs"—**a truck endowed with incomparable power, endurance and economy.**

See Big Brute today. Test it on the steepest hills and in the hardest pulling. Notice how eagerly it responds to a touch of the throttle. Put it up against the hardest jobs you know. Expect **more** of it. **You will not be disappointed.**

Sold and Serviced Everywhere by Branches, Distributors and Dealers of

GENERAL MOTORS TRUCK COMPANY, Pontiac, Michigan

A DIVISION OF YELLOW TRUCK AND COACH MANUFACTURING COMPANY

GMC 1, 1½ and 2½ ton trucks GMC Big Brute 3½ and 5 ton trucks GMC Big Brute 4 to 15 ton Tractor Trucks

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Public Utilities

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Factors in Rate Regulation: IV.—Depreciation

By Benjamin Cohen

ATTENTION was called in earlier issues to the sharp differences of opinion between representatives of the public and those of the public utility companies, as to the proper methods of fixing values for rate-making purposes. Closely related to this matter is the controversy over depreciation. There is this difference, however: While, for reasons pointed out in prior issues, the question as to the valuation method that should be used is becoming less important with the passing of years, the considerations involved in the controversy over depreciation are becoming increasingly important. The utilities fully realize the effect on present and future rates and earnings of the pronouncement by the highest courts on the various points at issue. A leading exponent of the public point of view has stated in a recent publication* that there was involved in the controversy over whether the accrued depreciation should be figured by the straight line age-life method or by the inspection method urged by utilities, the question of a return on over four billions of property; at 7 per cent, this means the collection or non-collection from consumers of $280,000,000 annually. The importance of the outcome demands an energetic and intelligent presentation of the public side in all litigation.

The Main Points at Issue

The main points at issue, or the problem to be solved, may be summed up briefly as follows:

1. Should there be included in fixing the rates to be collected by public utilities, a charge to reimburse the companies for that portion of the plant and equipment which has become worn out in rendering service, this amount to be set aside in a reserve (or fund) until the final exhaustion of the equipment, so as to lock up in the business an amount which will be sufficient to then purchase a new piece of equipment?

2. Should the cash equivalent of the above be actually withdrawn from the general cash and accumulated as a fund to be separately invested?

3. In arriving at valuations for rate purposes, should the reserve, or fund, be accepted as the proper measure of the amount of the depreciation in the plant?

4. Should the amount thereof, or any amount arrived at by one of the other methods, be deducted from the original cost, cost new, or other cost of the property, in arriving at the rate basis?

5. If the depreciation reserve or fund method is not the proper one by which to measure the amount of the actual depreciation existing in a particular plant, by what measure should it be estimated?

   (a) Should it be the "observed" depreciation, that is, the amount of expenditure required to be made to have the property look like new?

   (b) Should the amount be ascertained by physical inspection by expert engineers?

   (c) Should it be arrived at by a computation wherein the age of the equipment and its expired life and future-service life form the basis for the depreciation figure?

   (d) Should it be ascertained by a combination of the two foregoing methods?

   (e) Should it be the difference between original or other cost and the value in its present condition?

Where Opinion Agrees and Differs

There is little difference of opinion over item 1. It is pretty generally agreed that public utilities are entitled to charge in the rates an amount to cover the cost of property used up. This point requires no further discussion. The controversy centers mainly upon the question of whether any amount, no matter how arrived at, is to be deducted from original, reproduction, or other cost as of any particular date; this in spite of the fact that the Supreme Court has definitely decided that depreciations must be deducted from value new. The utilities naturally contend against, and the representatives of the public contend for, such deduction. Differences of opinion on the other questions have their origin in the main issue, for in the attempt to have a very small amount deducted, the utilities argue against any deduction whatever.

In this analysis the writer will attempt to present the various angles of the subject in a non-technical fashion—in a way that should be readily understood by the average layman interested in the subject. A brief explanation of the usual depreciation procedure prescribed by commissions

* Delos F. Wilcox in Depreciation in Public Utilities, published by the National Municipal League, New York, 1925.

What's back of this trend toward Budd-Michelin Dual Wheels and PNEUMATIC tires?

◆

TRUCK owners have long known that both heavy trucks and the roads get along better when there's a cushion of air between them. The only question has been, "How can it be done?" They are now learning the answer—Budd-Michelin Dual Wheels.

They're swinging to Budd-Michelin Dual Wheels and pneumatic tires. They are getting greater speed, with less strain on the truck and the driver. Their trucks last longer. Repair and maintenance costs are less.

They are saving valuable time on distant hauls, making more deliveries, getting better traction. In many cases they are finding it possible to cover the same routes with fewer trucks.

And the average tire mileage that over 50,000 giant buses and trucks are getting on Budd-Michelin Dual Wheels and pneumatics runs from 15,000 to 20,000 miles to the set.

This swing toward Duals and pneumatics is significant. By making it possible for all trucks to ride on pneumatic tires, Budd-Michelin Dual Wheels have made the heavy truck more widely useful, and placed it on better terms with the general public. It is a move that is stabilizing heavy duty transportation on the highways.

All truck manufacturers supply Budd-Michelin Duals on new jobs. Present equipment can be converted, too. Ask any truck dealer, or write direct to us.

BUDD

WHEEL COMPANY

Detroit

The Budd-Michelin equipment—two Budd-Michelin single wheels in front, two Budd-Michelin Dual Wheels in the rear (pairs of single wheels acting together as units). All wheels completely interchangeable either as units or as halves of Duals. One spare.

and followed more or less closely by the utilities, should be helpful to this end. In furnishing gas, electricity, telephone service, or any other commodity or service, public utilities necessarily employ labor and use great quantities of coal, oil, and other supplies. They also employ a big aggregation of plant and equipment. All are eventually used up in operations—supplies immediately and quickly, machinery slowly but ultimately. The consumer is presumed to pay rates which will be sufficient to pay for:

1. Cost of labor, materials, supplies, repairs and other expenses
2. A return on investment employed to be paid to the bondholders and stockholders for use of the money borrowed to construct the plant
3. Cost of the machinery used up, at the time it is used

The company should not have to wait until the machine is completely exhausted or used up and then ask consumers or stockholders for the money with which to buy a new one, but should collect in the rates year after year an amount which will be sufficient to pay therefor when the old one is completely worn out.

No one can tell, to a certainty, measured in dollars and cents, just how much of a given property has been used up in service in the short space of a year, any more than anyone can tell how long any particular individual will live. Yet insurance companies do construct mortality tables based on the length of life of those who have died over a period of years and upon the ages of those living at present, taking into account, of course, all other factors which are likely to affect the result. In this way the life expectancy of individuals of various ages is arrived at and adjusted to meet particular conditions. Similarly, no one can foretell the exact service life of a machine, yet by keeping record of the lives of various types of machines over a period of years and taking into account the various factors that are likely to affect the useful life of the machines, such as the care with which handled, intensity of use, the frequency of repairs, etc., a capable management will not, over a period of years, run far afield in estimating the amount required to be charged in the rate to be paid by consumers annually for the ultimate but gradual exhaustion or wearing-out of property. The fact that this amount, called the annual depreciation requirement, is not susceptible of exact measurement, has been seized upon by some utility representatives as an argument against the deduction of any depreciation from original or other cost of property in fixing a rate base. Their claim, in substance, amounts to saying: "If our property new costs (or would cost to reproduce) $1,000,000, the public should pay us a return on the full $1,000,000, because no one can tell whether the depreciation existing thereon is $300,000 or $275,000. Since you do not know, and cannot prove, the exact amount, we must have a return on the undepreciated value of the property." By similar reasoning, insurance companies would not be issuing any policies.

It is relatively unimportant whether there is absolute correctness in estimating the annual depreciation charge, for there is little danger that public utilities may set aside excessive amounts, provided the rule is strictly adhered to that the amount accumulated in the reserve must be deducted from the plant account in fixing the rate base on which the return is to be allowed. If the reserve were uniformly deducted from the plant account, a company which made a practice of charging excessive depreciation would penalize itself and would ultimately reap the harvest from its malpractice.

That this is so is illustrated by the tabulation at the bottom of this page, in which a comparison is made of the result year by year of the practice of charging depreciation at the proper amount and in an excessive amount. Assume the property cost $1,000,000, and its service life is twenty years. The proper annual depreciation charge becomes $50,000 ($1,200,000 divided by 20).

It is thus seen that under proper depreciation charges the company will be collecting from consumers a total of $735,000 as a return on the investment over the period of twenty years, and the amount collected from consumers for the repayment of plant used plus a 7 per cent return on the net amount of the investment comes to $1,735,000. This compares with $385,000 and $1,385,000, respectively, when depreciation charges are excessive. In other words, the excessive depreciation charges resulted in a diminution of income or return by $350,000 in the period. The only harmful effect has been to overcharge consumers during the first ten years and undercharge them in the

RESULT SECURED WHEN A PROPER AMOUNT OF DEPRECIATION IS CHARGED

	Anual Depreciation Charge	Depreciation Reserve Accumulated*	Original Investment ($1,000,000) Less Reserve, or Amount on Which a Return is Payable	7% Return on Preceding	Annual Depreciation Charge Plus Return—Amount to Be Collected in Rates
1st year	$50,000	.....	$1,000,000	$70,000	$120,000
2nd "	50,000	$50,000	950,000	66,500	116,500
3rd "	50,000	100,000	900,000	63,000	113,000
4th "	50,000	150,000	850,000	59,500	109,500
5th "	50,000	200,000	800,000	56,000	106,000
6th "	50,000	250,000	750,000	52,500	102,500
7th "	50,000	300,000	700,000	49,000	99,000
8th "	50,000	350,000	650,000	45,500	95,500
9th "	50,000	400,000	600,000	42,000	92,000
10th "	50,000	450,000	550,000	38,500	88,500
11th "	50,000	500,000	500,000	35,000	85,000
12th "	50,000	550,000	450,000	31,500	81,500
13th "	50,000	600,000	400,000	28,000	78 000
14th "	50,000	650,000	350,000	24,500	74,500
15th "	50,000	700,000	300,000	21,000	71,000
16th "	50,000	750,000	250,000	17,500	67,500
17th "	50,000	800,000	200,000	14,000	64,000
18th "	50,000	850,000	150,000	10,500	60,500
19th "	50,000	900,000	100,000	7,000	57,000
20th "	50,000	950,000	50,000	3,500	53,500
At end of 20 years	.....	1,000,000	.....	.....	.....
Total for period	1,000,000	.....	.....	735,000	1,735,000

* Assuming no retirements were made.

18 years old—but still new!

The photograph of Washington Avenue, Saginaw, Michigan, shown here, bears testimony to the wisdom of paving with Trinidad Native-Lake Asphalt. It has withstood all sorts of weather and traffic conditions since 1908, has *required practically no maintenance,* and is in good condition today.

Trinidad is a native-lake solid bitumen—superior in every way to man-made substitutes. Long lasting and low in service cost—and years of use have proved its attractiveness, resiliency, ease of keeping clean and repairing, and freedom from noise.

The record of performance of Bermudez Road Asphalt recommends it for use in *road* construction. Write for interesting data.

The Barber Asphalt Company

Philadelphia

New York Chicago Pittsburgh St. Louis
Kansas City San Francisco

TRINIDAD LAKE ASPHALT

RESULT UNDER EXCESSIVE DEPRECIATION CHARGES

	Annual Depreciation Charge	Depreciation Reserve Accumulated*	Original Investment ($1,000,000) Less Reserve, or Amount on Which a Return is Payable	7% Return on Preceding	Annual Depreciation Charge Plus Return—Amount to Be Collected in Rates
1st year	$100,000	.....	1,000,000	70,000	170,000
2nd "	100,000	$100,000	900,000	63,000	163,000
3rd "	100,000	200,000	800,000	56,000	156,000
4th "	100,000	300,000	700,000	49,000	149,000
5th "	100,000	400,000	600,000	42,000	142,000
6th "	100,000	500,000	500,000	35,000	135,000
7th "	100,000	600,000	400,000	28,000	128,000
8th "	100,000	700,000	300,000	21,000	121,000
9th "	100,000	800,000	200,000	14,000	114,000
10th "	100,000	900,000	100,000	7,000	107,000
11th "		1,000,000			
12th "	None				
13th "	The Investment	The reserve now	There is no investment		
14th "	has been	equals the	remaining		
15th "	completely	investment—	which has	None	None
16th "	depreciated	consumers	not been		
17th "	on the	have repaid	repaid to		
18th "	books	the investors fully—charged in the rates.	investors by depreciation charges.		
19th "					
20th "					
Total for period	1,000,000	.....	.....	$385,000	$1,385,000

NOTE: In order not to complicate the presentation, it is assumed there were no retirements or replacements during the period. While in actual practice there would be numerous retirements and replacements, these would make no change in the situation. The only difference would be that the reserve and the rate base would be reduced by the amount of retirements and the rate base increased by the new plant purchased out of the reserve or reserve fund.

* Assuming no retirements were made.

last ten years. Unless the exact amount which has been accumulated in the depreciation reserve (representing the portion of the investment repaid to investors by consumers) is deducted from the plant amount consumers will be paying high rates because companies will be collecting a return on the investment which has been repaid them through charges in the rates for depreciation. This principle should be firmly established in the law on regulation. The recent United States Supreme Court decision in the New York Telephone case,* wherein it reversed the New Jersey Public Utilities Commission, because the latter reduced estimated future depreciation allowances because of excessive past depreciation charges, emphasizes the importance of this situation. Undoubtedly, the utilities will attempt to read into the decision the inference that, no matter what depreciation charges were in the past, the reserve should not be deducted from the rate base, whereas all the Court said was that you cannot reduce the amount of the future depreciation allowance on that account. The question of the proper deduction from the plant account for accrued depreciation was not involved in the case and was not touched upon in the Supreme Court decision.

* Board of Public Utility Commissioners, et al., appellants, vs. New York Telephone Co.—No. 567—October term, decided April 12, 1926.

Items of Public Utility News

A Subway for Tokio

TOKIO, JAPAN.—Plans for subway construction in Tokio at an estimated cost of 187,485,959 yen (approximately $80,620,000) have been completed. The expenditures will extend over a period of 13 years, commencing with the fiscal year ending March 31, 1927, and terminating March 31, 1939.

Rate of Return Controversy in St. Louis

ST. LOUIS, MO.—Mayor Miller states that he will insist upon a provision in the new franchise ordinance under which the St. Louis Public Service Company will operate when it takes over the property of the United Railways Company limiting the rate of return on the investment at not more than 6 per cent. He declares that when representatives of the reorganizers decide to accept a 6 per cent return and so notify him, negotiations will be continued. The reorganization committee contends a return of 7 per cent is necessary. When the tentative draft of the service-at-cost franchise was made public several weeks ago, the rate of return to be allowed the company was left blank. The valuation was also blank in the tentative draft, both sides having agreed to abide by the findings of the State Public Service Commission covering this point.

"Staggering" of Workers' Hours in New York

NEW YORK CITY.—On August 2 tabulation was begun of traffic census statistics taken in connection with the effort to be made to stagger the hours of workers. The Health Commissioner has announced that figures on 20,000 workers a day can be tabulated. When they have been classified as to where each worker works, what time he leaves for work, what time he quits work, and what routes he uses, the question of staggering their hours will be taken up with the employers. After this has been done, action can then be taken to broaden the rush-hour periods so that passengers may travel in comparative safety and comfort. Of course, the success of the plan will depend upon the extent of the cooperation of the employers. If the necessary readjustments can be made, it is believed the capacity of present facilities can be increased 25 per cent.

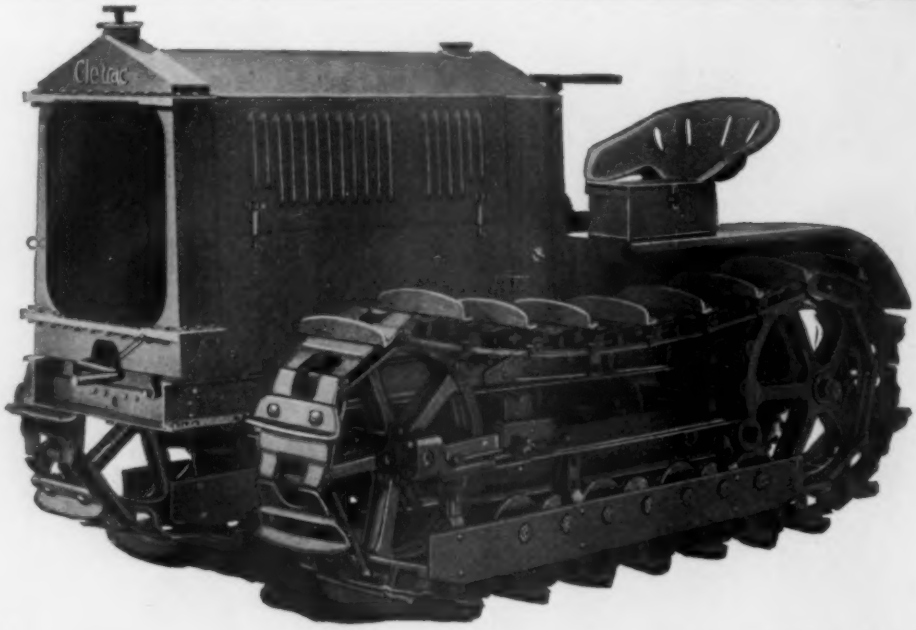
Group Insurance for Utility Employees

CHICAGO, ILL.—The Chicago, Aurora & Elgin Railroad has entered into an agreement with its employees whereby each has an opportunity of taking out life insurance, together with dismemberment indemnity, on the group insurance plan. The policy total of $500,000 covers approximately 500 employees.

Municipalities Would Curb Commission's Power

ILLINOIS.—Representatives of 43 municipalities who met in Peoria recently have perfected a permanent organization to fight for home rule and called for the repeal or modification of the state public utilities act. It was charged that cities of the state have been reduced to "supplicants before the Illinois Commerce Commission" and decision was made to work with the Illinois Municipal League toward securing aid from the next Legislature in limiting the commission's control over utilities within city boundaries. Resolutions calling for the State Assembly to act toward curbing the Commission's power were passed before adjournment.

A strenuous fight on home rule for public utilities by municipalities instead of present regulation by a state commission was predicted for the next session of the Legislature by Corporation Counsel F. X. Busch of Chicago. Mr. Busch recommended that the present requirement of 25 per cent of the signatures of voters at the last mayoralty election to bring the proposition of home rule for public utilities to a vote be reduced to 2 per cent of the voters and that the proposition be decided upon a majority of the votes cast upon it instead of upon a majority of votes cast at the election.



Scores of Cities Find CLETRAC a Profitable Investment!

EVERY month of the year there are dozens of jobs in your town that demand dependable, low-cost power. Road and street work, public improvements, snow removal and scores of other tasks confront your various departments daily—and Cletrac offers the practical solution to your tractor-power problems. For example, read this letter from the town of Wallingford, Conn.

July 28, 1926

"We have worked our entire road mileage, and some of it the second time, in thirty days less time than any of the other three previous years when using other tractors. In other words, *a saving of a thousand dollars* with no additional help. The low consumption of gas and especially oil is more than surprising. I am sure that our tractor *paid for itself moving snow last February.* It sure is the new wonder in that line.

"I think it is one of the greatest machines produced, and I'll tell the world, when power is needed, Cletrac is the answer!"

Town of Wallingford
(Signed) PETER B. LEE

Get the facts about these better, year 'round tractors and how economically and efficiently they can serve your community. Illustrated folders and full information sent on request.

The Cleveland Tractor Company
Cleveland, Ohio

Some of the Cities Now Using Cletracs

Barre	Pa.
Brightwaters	L. I.
Cedarhurst	L. I.
Garden City	L. I.
Kingston	N. Y.
Lawrence	L. I.
Lynbrook	L. I.
Marlboro	Mass.
Minola	L. I.
Montclair	N. J.
Monterey	Mass.
New Haven	Conn.
New London	Conn.
Northampton	Mass.
North Hempstead	L. I.
Norwalk	Conn.
Ogdensburg	N. J.
Plainville	Conn.
Pleasantville	N. Y.
South Hedley Falls	Mass.
Terryville	Conn.
Ware	Mass.
Warrenville	Conn.
Washington	Conn.
Westerly	Rhode Island
Westport	Conn.
Wurtsboro	N. Y.

Tremendous Water Waste from Unmetered Services

PHILADELPHIA, PA.—It is estimated by the Philadelphia Bureau of Municipal Research that the amount of water wasted each day in Philadelphia homes which have no meters reaches the staggering total of 26,000,000 gallons. This single source of waste costs the city more than a quarter of a million dollars annually, and this sum does not take into account leaks in the distribution system. While the metering of services is gradually increasing, 70 per cent still have no meters.

Reductions in Gas Rates

FLINT, MICH.—Lower gas rates will become effective in Flint as soon as a new schedule which has been filed with the Michigan Public Utilities Commission by the Consumers Power Company has been approved by the Commission, according to a recent report made to the Common Council by City Attorney John H. Farley. The revised schedule will give domestic users a reduction of 5 cents per 1,000 cubic feet, which parallels a similar reduction allowed to industrial users last fall. Other optional rates for water heaters and house heating, which are fixed on a sliding scale, also offer a reduction which would make the total reduction in rates average about 6 per cent.

BEMIDJI, MINN.—A decided cut in the gas rates, as the first step in an active campaign to increase the gas consumption in Bemidji, was announced to the City Council Monday evening by the supervising manager of the local plant. When the plant was purchased by the W. B. Foshay Company, it was announced that an active effort would be made to improve the quality of the product and the service to the consumers and to reduce the rates. Additional equipment is to be installed in the very near future so as to improve the quality.

Distribution of Surplus Profits to Customers

STAMFORD, CONN.—A unique plan to distribute a surplus among its 25,000 customers—a dividend for consumers—has been announced by the Stamford Gas & Electric Company. This customers' dividend will be distributed in the form of a 50 per cent discount on October bills. The announcement says in part:

"A number of factors, a few certainly temporary, and more possibly permanent, have combined despite increasing business to keep expenses at a much lower proportion of increase. This has meant a larger profit than was estimated.

"The rates charged by the Standard Gas & Electric Company are believed to be the lowest of any company in this section of the country operating in a community the size of Stamford. Conditions creating the surplus are regarded as exceptional and may not again be duplicated. It would be unsafe as a matter of conservative managerial policy to assume they will be and to proceed to reduce rates with a chance that an increase would follow. Merely because it is not certain that rates can be reduced the company saw no reason why the consumer should not still enjoy the benefit of this year's unusual earnings. It is the settled policy of the company to give its customers the benefit of any reduction in cost that it is able to effect, and in order to do so at this time the directors have authorized a customers' dividend rather than to collect from the public more than is necessary for interest and dividend disbursements and a reasonable surplus. The month of October was selected because it is a typical month and represents a fair average monthly use of gas and electricity."

The Bus as an Ally, Not a Substitute for the Electric Railway

THE case for the street car as a factor of continuing value in urban transportation was effectively presented by Fred G. Buffe, General Manager of the Kansas City Railways, in a recent discussion before the American Society of Civil Engineers, at Kansas City, Mo. As quoted in the *Electric Railway Journal,* Mr. Buffe said in part:

"The bus is not, and as we now see it can never be, a substitute for the electric railway in moving large numbers of persons during the rush hours. The street railway is here to stay, and its usefulness will increase as the vehicle for mass transportation at the lowest possible fare. The street car is more reliable; its rides can be furnished at less cost; it takes up less pavement space per passenger moved; it moves on a fixed track and congests traffic the least, considering the number carried. The street car is the backbone of urban transportation, the great servant of the masses, the foundation on which rests the superstructure of real estate and business prosperity, furnishing the maximum of service for the minimum fare. The bus is primarily a seat-for-every-passenger vehicle, offering a preferential service at a higher fare.

"The proper place for the bus is as an integral part of a coordinated transportation plan. Coordinated transportation contemplates a complete service, using both bus and street car, not making one subordinate to the other, but fitting each vehicle to its proper field to avoid duplication and to render a more efficient and desirable public service.

"The bus when used as a feeder, as a server of undeveloped territories, as a crosstown facility and on lines where track must be rebuilt and where there is no rush-hour problem, plainly meets a real need. It can also be used as a main or through line carrier, serving districts heavily built-up away from car lines and along boulevards and parks where car lines would not be permitted.

"I do not believe the bus should be used half-heartedly and confined to the outskirts. The public desires bus transportation, and as transportation agencies we must meet this public desire. The downtown bus can be used to advantage. It offers a different service, makes an appeal to a certain class of riders who are willing to pay a higher fare on a seat-for-every-passenger basis."

Motor Accidents Need More Attention from County Governments

RURAL motor fatalities increased 23 per cent in 1925, according to a survey completed in July by the National Automobile Chamber of Commerce. This is the first national survey which has been made segregating the country districts from the urban sections, and in the opinion of the Automobile Chamber it brings to light the necessity for focusing attention on betterment of traffic in the country districts. This rise in motor fatalities in rural sections is much higher than the general average for the country as a whole, which has been estimated at 10 per cent.

Complete records for 1925 were received from 1,434 counties, which is 43 per cent of the total. These recorded 4,568 fatal motor accidents in 1925 as compared with 3,726 in 1924.

Smoother Roads and Tempers

Motorists and taxpayers have learned that ruts and bumps *are* avoidable! They have discovered the greater comfort of driving over roads built and maintained by "Caterpillar" equipment.

Road officials who provide the good roads that follow in the wake of a "Caterpillar" outfit justify the confidence of their public—and win the satisfaction of stretching public funds over more miles of good roads!

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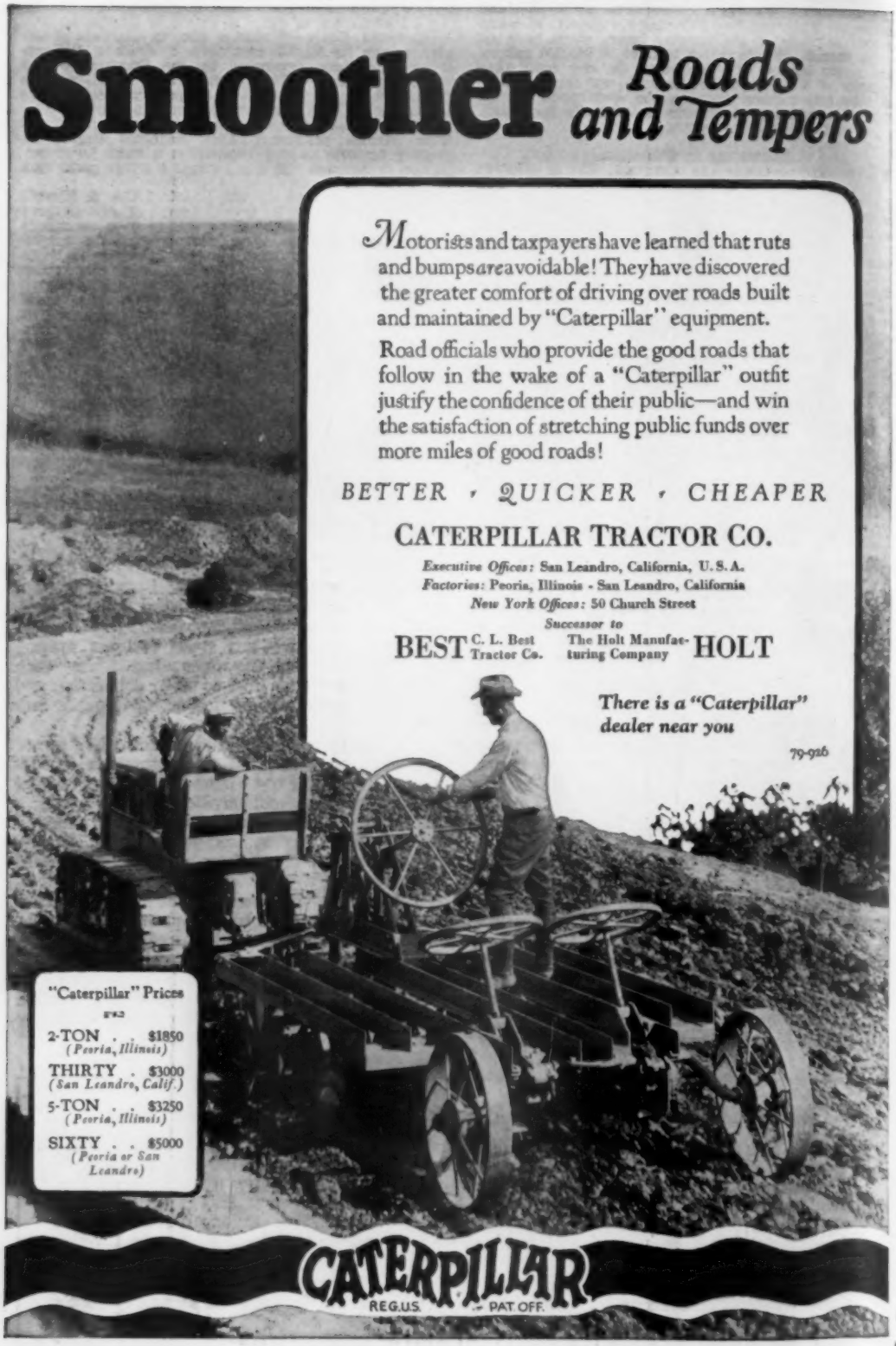

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Municipal Accounting and Finance

Conducted by Francis Oakey, C. P. A.

Member of the Firm of Searle, Oakey & Miller, New York

Factors Which Affect the Financial Condition of a City

THE financial condition of a city consists of its ability to finance service requirements. By "service requirements" we mean a sufficiency of those benefits which an organized city government is commonly expected to furnish its citizens, including especially:

Maintenance of law and order
Protection from fire
Maintenance of health and sanitation
Education
Provision and maintenance of streets and sewers
Regulation of street traffic
Water-supply, street lighting, and other utilities, if not privately owned.

The sole purpose of city government is to maintain these public services in a state of sufficiency. It is not the purpose of government to acquire property and produce a surplus. Therefore the test of the financial condition of a city is not the value of its assets over and above its liabilities, but its ability to finance the services which its citizens require. If it cannot maintain these services in a satisfactory state its financial condition is poor.

The Need for Information

The essential facts respecting the financial condition of a city are not often made known. This is because the main factors which bear on the question are not always recognized. Total assessed valuations, tax rates, populations, total debt, and margins of debt limits convey little information unless interpreted, and even then do not tell the story. The real tests are whether conservative programs of expenditure and of financing have been formulated and are being carried out, and particularly whether the expenditures for public works are being financed on a sound basis and adequate redemption of debt has been provided.

Wise Expenditure and Well-Planned Financing the Foundations of Sound Financial Condition

In order to perform the functions of government, a great variety of expenditures must be made; the main classes are as follows:

1. Salaries and wages
2. Printing, stationery and office supplies
3. Light, heat and power
4. Telephone and telegraph
5. Hospital supplies
6. Repairs and maintenance of buildings, sewers, streets, and equipment
7. Construction of new buildings, sewers, and streets
8. Acquisition of new machinery and equipment
9. Interest on debt
10. Redemption of debt.

The expenditures described under the first five headings enumerated above constitute the daily living expenses of the city; they relate solely to the current year. The salary of a policeman, a bill for electric light or telephone, or drugs for the hospital, are items of expenditure which benefit solely the taxpayers of the period immediately passing, and must be paid for by them. This class of expenditures is not often an important factor in the development of a sound or unsound financial condition. We do not subscribe to the popular notion that a city's payroll ordinarily includes a large number of unnecessary employees. Are there too many policemen, firemen, street cleaners, doctors, nurses, or school teachers? Usually there are not enough. The efficiency expert may find too many printed forms, too many telephone calls, or rubber bands, but waste of this sort will never wreck a city.

But expenditures made to acquire and maintain permanent properties are of a different character. When wisely made and soundly financed, these expenditures tend to build up a favorable financial condition; when omitted or neglected, or when financed by an unsound borrowing policy, a generation of taxpayers often

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Prevent injury to plow, truck or tractor when striking unseen obstructions on the pavement and permit snow moving at high speeds without danger.

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A Pennsylvania County Engineer writes: "Our reason for deciding on this type (Baker) plow was to overcome irregularities on the highways which ordinarily injure the blades on other type plows, incidentally breaking certain parts and throwing undue strain on the axle."

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suffers. Unsound policy in expenditures of these classes is the chief cause of unfavorable financial condition in municipalities.

The Acquisition and Maintenance of Permanent Property as Factors Affecting Financial Condition

Every city requires permanent properties—buildings, equipment, streets, and sewers. These properties must be maintained at adequate capacities and in condition fit to render satisfactory service. This means that expenditures of three classes must be made continuously: first, the properties in use must be kept in repair; second, worn-out or obsolete property must be replaced; and third, increasing work requirements necessitate the purchase of new and additional property. For these three classes of expenditure the first requisite is wise spending; the second requisite is sound financing.

Wise expenditure in the acquisition and maintenance of city property means that a program of expenditure must first be formulated and adopted, looking forward not merely to the coming year but to a period of years. Such a program takes into consideration the future needs of the city and adapts each year's expenditures to these needs and makes them a part of the plan. This method increases the useful life of the property acquired, by avoiding as far as possible the heavy losses which result from premature replacements made necessary by developments which could have been foreseen.

Wise expenditure, of course, also means prompt and complete repairs each year. The postponement of these charges has a serious effect upon financial condition, since it results in an accumulation which must be disposed of but for which the current revenues are insufficient, unless other necessary expenditures are omitted or reduced. This situation often means an undue increase in taxes or a curtailment of service; in any event it makes difficult the problem of financing service requirements.

Finally, wise expenditure means that the type, grade, and quality of the property acquired must be well adapted to the service requirements and that the prices paid must be in accordance with the market.

If these principles are not adopted and adhered to, the results are inadequate capacity of city property, insufficient service, requiring heavy expenditures for repairs, replacements and additions to obtain the capacity which is needed. To finance such expenditures, high taxes or a heavy burden of debt must be assumed and current revenues must be used for these purposes in a greater proportion, necessitating, perhaps, a curtailment of service. The sinking fund and interest charges required as a result of the increased debt restrict the current revenues for a perid of years and reduce the amount available to finance current needs. Thus unsound expenditure in the maintenance and acquisition of permanent property produces an unsound financial condition.

Financial Condition Not Affected by the Value of Property Owned

In commercial practice and in the case of the individual, net worth, or the excess of assets over liabilities, is the chief factor in determining financial condition. In the case of a government it is of little or no importance as a factor in such determination. The value of a government's property has practically no bearing on this question; the vital consideration is whether the property is adequate in capacity to meet service requirements and, if not, what will it cost to obtain the needed capacity. If it is known that the existing school houses have a capacity to house 10,000 children satisfactorily and that there are 12,000 school children to be housed, and further, that the additional capacity required will cost $350,000, then, with these facts in mind, we are prepared to think intelligently about the problems of expenditure and financing and the effects upon financial condition.

Sound Financing as a Factor Affecting Financial Condition

In order to maintain a sound financial condition, not only is a well-considered program of expenditure essential, but also a comprehensive program of financing. The two must be closely related; in fact, the one must depend upon the other. That portion of the program of financing relating to public works must cover a period of years.

The chief source from which a city finances its expenditures is taxes on real and personal property. It is true that municipal revenues also include miscellaneous items such as licenses, franchises, permits, etc., but these are comparatively small in amount. It is true also that cities frequently borrow money to finance the replacement and acquisition of public works, but the eventual liquidation of such loans must be financed from taxation. Consequently a city's ability to finance its service requirements depends in the end upon its taxing power.

In theory, the taxing power is limited only by the wealth of the community, or by constitutional or charter restrictions, but in prac-

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Note the record displayed on this page.

Nevada County, Iowa, maintained 623 miles of road in 28 nine-hour days at a cost of only 33 1-2c per mile!

These are the figures of the Nevada County Highway Engineer. They represent just a typical instance of how state, county and township highway officials and many individual contractors are making a record for lower cost highway maintenance with the Wehr.

623 Miles in 28 9-Hour Days at 33½¢ per mile

The reasons for this are obvious. The better design of the Wehr makes it more efficient. Its better construction makes it stronger and huskier. Its thorough engineering more fully utilizes the Fordson power and provides the Wehr with the correct ratio of power to weight to traction. And, because there are more Wehrs in operation than any other grader of the "one man" type, it is the lowest priced power grader on the market.

Why don't you write for the complete details of how this powerful and dependable unit cuts road-building and road-mending costs a full 75%!

The Wehr Grader will be exhibited at the All-Western Road Show, San Francisco, Cal., Oct. 7th to 15th, and the American Road Building Association Convention, Coliseum, Chicago, January 10th to 14th.

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tice it is limited by the rate which the taxpayer will bear. Abnormally high taxes will not only discourage the improvement of property, but will eventually drive out the taxpayer to a more favorable community.

Hence one of the essentials to the maintenance of a sound financial condition is the conservation of taxing power. Like any other resource, taxing power can be depleted and even exhausted by extravagance and waste, and the surest way to bring about such a condition is the failure to formulate and carry out two programs—one for expenditure and one for financing.

A sound program of financing is based on the principle that each year must bear its just share or burden of expenditure. This means that the following classes of expenditures must be met each year out of the revenues:

1. Expenses of administration and operation
2. Current repairs
3. The year's proportionate share of the cost of replacements
4. The year's proportionate share of the cost of additions and betterments
5. The year's proportionate share of the redemption of bonded debt
6. Interest charges

It is always difficult to determine with accuracy the year's proportionate share of the cost of replacements and of additions and betterments. The only method which we know of by which a usable result may be reached consists in accumulating the total of the estimated depreciation of property applicable to the year. This method is based on the theory that the total amount by which the city's property has depreciated during the year is the amount which the year should contribute out of taxes as its share of the burden of keeping all the property of the city intact in sufficient capacity and fit for service. If the amount required for replacements and additions exceeds this figure, the excess may be safely shifted to future years by financing it out of bond issues.

Each year must also contribute its share of the burden of debt redemption. This is accomplished by providing adequate sinking funds to which the required annual installments are transferred from current revenues.

Borrowing Policy as a Factor Affecting Financial Condition

If each year's just burden of expenditure is not met out of current revenues,—that is, by taxation,—and if an undue portion is financed out of bond issues, then there is eventually an accumulation of debt and heavy fixed charges for interest resulting in an unsound financial condition.

In this country it is easy for cities to borrow money. Generally speaking, their taxing power is increasing, due to increasing wealth and population. Their credit is good. Failure to pay the principal and interest on their bonds is rare. The demand for municipal bonds is nearly always comparatively strong. This demand is stimulated by the laws of the states which make such bonds legal investments for savings banks, insurance companies and trustees. It has also been stimulated by the laws of the Federal Government which exempt from taxation the interest on such bonds.

Coupled with this strong demand for municipal bonds is the strong temptation to issue which is constantly working upon the administration. Bonds are generally issued to finance expenditures for public works. These expenditures please not only the electorate but also the contractors who may be friends of the administration. The present taxpayers do not have to pay the bill; in fact, bond issues sometimes mean a reduction in the immediate rate of taxation—for example, when the year's share of the cost of replacements and additions is in whole or in part paid for out of borrowed money. A proposed bond issue may require an increase in the debt limit; this is accomplished by increasing the total assessed valuation, which, of course, reduces the tax rate—results which generally please the taxpayer.

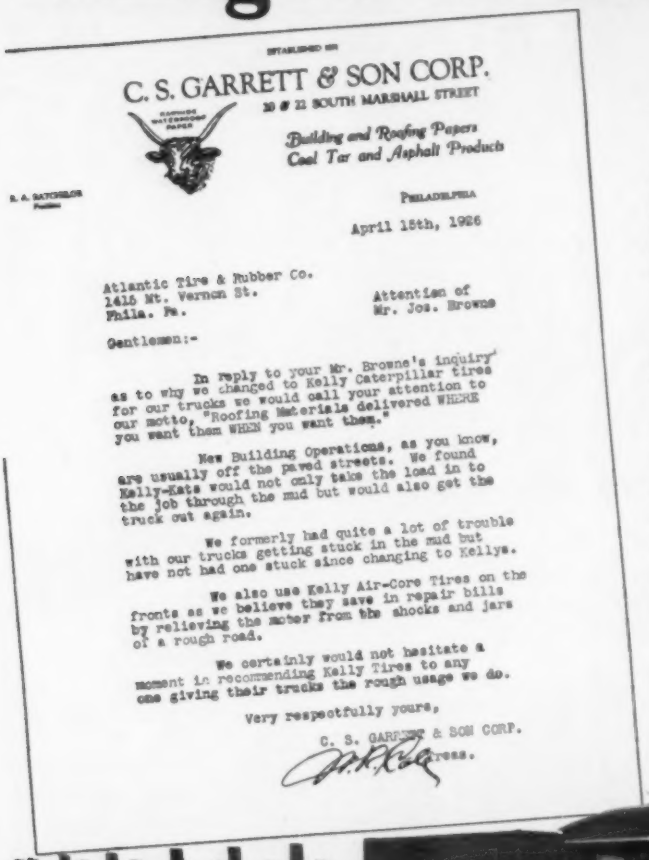
Thus, in administering the affairs of a city, the power to borrow money is a heavy responsibility. The future financial condition of the city depends upon the judgment and honesty with which this responsibility is discharged.

The first essential to a sound borrowing policy is the formulation and adoption of a program of borrowing and also of redemption. These programs must cover a period of years and must be continually extended to include new issues and to conform to the program of expenditures for public works.

A sound program of borrowing is based on the following principles:

1. A city should borrow to pay only for replacements and additions of the most permanent character.
2. A city should not over-borrow; that is, it should not borrow to pay for a part of the current year's share of the cost of replacements and additions of property.
3. Debt should not be issued for a term in excess of the life of the property acquired.
4. For each issue of debt a definite and adequate plan of redemption should be provided.
5. No debt should be issued without full knowledge of its effect upon the burden of redemption and interest of future years.
6. The burden of redemption should be distributed as evenly as possible over the future years.

Why Garrett & Son changed to Kelly Kats



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PHILADELPHIA

April 15th, 1926

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Attention of
Mr. Jos. Browne

Gentlemen:-

In reply to your Mr. Browne's inquiry as to why we changed to Kelly Caterpillar tires for our trucks we would call your attention to our motto, "Roofing Materials delivered WHERE you want them WHEN you want them."

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We formerly had quite a lot of trouble with our trucks getting stuck in the mud but have not had one stuck since changing to Kellys.

We also use Kelly Air-Core Tires on the fronts as we believe they save in repair bills by relieving the motor from the shocks and jars of a rough road.

We certainly would not hesitate a moment in recommending Kelly Tires to any one giving their trucks the rough usage we do.

Very respectfully yours,

C. S. GARRETT & SON CORP.

THE third paragraph of this letter from C. S. Garrett & Son Corp. to the Kelly-Springfield dealer in Philadelphia, tells a story in itself.

Kelly Kats are noted for their phenomenal traction. They will plough through mud or over crushed rock and gravel without any tire-some, profit-eating delays.

The truck equipped with Kelly Kats will go where-ever the engine has power to push it.

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The City's Legal Rights and Duties

Conducted by A. L. H. Street, Attorney at Law

Guarding Against Delinquent Water-Rates

A STUDY of the law reports discloses that courts throughout the land have been frequently called upon to determine the validity of measures taken by water companies and municipal water departments to secure the payment of charges due or to become due from consumers.

If, as may be assumed, some cities and companies require a reasonable deposit to secure payment of future charges, the validity of the requirements must have been quite generally accepted, for little is to be found in the law reports on this particular phase. But the law seems to be well-established to the effect declared by the Kentucky Court of Appeals in the case of Union Light, Heat & Power Company vs. Mulligan, 197 Southwestern Reporter, 1081:

"The general rule is that a public service company furnishing gas, electricity, water, or telephone service may require that charges shall be paid for a reasonable term in advance, or be secured by a reasonable deposit by the consumer, and may enforce such a requirement by the refusal of service to persons who do not comply therewith."

As supporting this statement, the opinion cites decisions of the appellate courts of Wisconsin, Michigan, Missouri, Washington, Tennessee, New York, Iowa, Kentucky, North Carolina, Alabama, Nebraska, Maine, Idaho, Montana, Massachusetts, and Oklahoma. A Kansas decision is cited as "the only case that seems to give forth a discordant note."

A comparatively recent and very comprehensive note at pages 472-497, 28 American Law Reports, summarizes cases on various aspects of the right to cut off water-supply because of non-payment of charges.

In one of the latest cases on the subject, Dodd vs. City of Atlanta, 113 Southeastern Reporter, 166, defendant's charter was held to authorize the city to discontinue service to a building until payment of arrearages, with interest.

On the right to refuse water service until payment of charges incurred by a former owner or occupant, the general rule appears to have been accurately stated by a New Jersey court in the case of Millville Improvement Company vs. Millville Water Company, 113 Atlantic Reporter, 516, as follows:

"In the absence of legislation to the contrary, a tenant is privileged to contract for water service to the same extent as the owner of the property, and . . . any restriction upon or discrimination against that right of a tenant is inconsistent with the public duties imposed upon a water company, and accordingly unlawful; and . . . in the absence of legislation creating a lien on real estate for water service, or other legislation of like effect, no person can be denied service because of delinquency of a prior owner or tenant."

Reaching a similar conclusion in the case of Covington vs. Ratterman, 108 Southwestern Reporter, 297, the Kentucky Court of Appeals said:

"The ordinance in question confers upon the city the power to turn off the water if not paid for when the water rent is due, and, when once shut off, to refuse to turn it on until the water-rent in arrears shall have been paid; but this power must be exercised against the delinquent person or persons to whom the water was furnished and the credit therefor extended, and cannot be employed against an innocent purchaser of property owned or occupied by such delinquent when the debt to the city for water was created. The purchaser of real estate takes title subject to all recorded liens against it, and also subject to any unrecorded valid liens of which he may receive notice before the purchase; but in this case no liens existed upon the property appellee purchased, for water-rent due the city. Its claim here asserted is owing by the former owner or occupants of the property, and no duty rested upon appellee, before purchasing it or accepting the deed thereto, to ascertain by inquiry at the office of the water commissioner, or elsewhere, whether or not this vendor, or any occupant of the premises, was owing the city water rent."

Decisions in line with this rule have been handed down by the appellate courts of other states, including Illinois, Massachusetts, Mississippi, New Mexico, South Carolina, Vermont, and Washington.

The pleasing light gray color of concrete pavement will dress up your street

Famous Streets in Los Angeles Carry Flood of Traffic

Los Angeles has more concrete streets than any other city in the country—a total of over 220 miles.

All of these streets are carrying a steadily increasing volume of traffic, and are doing so with very little maintenance.

Some of them are famous thoroughfares representing the most advanced type of paving construction.

They include Vine Street, "The Highway of the Movie Stars;" Franklin Avenue, one of Hollywood's fine residential streets; Cahuenga Avenue, the main artery leading into Los Angeles from the San Fernando Valley; and Hill Street from Washington to Santa Barbara Avenue.

Los Angeles is building more concrete streets every year. The latest of these is Pico Boulevard. This, when completed, will be from 34 to 68 feet wide throughout its entire length of seven miles.

It will pay other cities to make a careful study of Los Angeles' advanced practice in permanent street paving.

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Atlanta	Denver	Lincoln, Nebr Los Angeles	Oklahoma City	Salt Lake City
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Columbus	Jacksonville	New Orleans	Portland, Oreg	Vancouver, B. C.
Dallas	Kansas City	New York	Richmond, Va.	Washington, D. C

Items of Municipal Law

In Absence of Binding Provisions for Completion, Special Assessments Cannot Be Levied for Incomplete Improvement

A municipal corporation cannot levy a special assessment for water-mains until binding provision had been made for providing a water-supply and its distribution through the mains, according to the holding of the Illinois Supreme Court in the case of Village of Gardner vs. Christensen, 151 North Eastern Reporter, 707.

A City Is Liable for Destroying a Building Misjudged to Be a Nuisance

In the case of McMahon vs. City of Telluride, 244 Pacific Reporter, 1017, the Colorado Supreme Court laid down the law governing a city's liability for destroying a building on the theory that it constituted a nuisance. A lower court ordered the suit dismissed on the ground that defendant city would not be liable to plaintiff for destruction of his frame building, whether it was a nuisance or not, because it acted in a governmental capacity. Reversing this decision, the Supreme Court decided that if the building was not in fact a nuisance, the city must respond in damages for destroying it, saying:

"Abatement of nuisances is a governmental function. . . . No liability can arise against a municipality for the destruction of property which is a nuisance, but it must be a nuisance in fact. . . . If property is destroyed under a mistaken belief that it is a nuisance, when in fact it is not a nuisance, it is taken for a 'public use' within the meaning of the constitutional provision, and the loss to the owner should be made good."

Under Arizona Constitution, Municipality May Levy Taxes and Issue Bonds for Acquisition of an Ice Plant

Lately the Arizona Supreme Court was called upon to align itself either with the courts in other states which have denied the power of cities to engage in the production of ice for their inhabitants or with the courts which have affirmed existence of the power. The Court held that, under the Arizona constitution, municipalities may levy taxes and issue bonds for the acquisition of an ice plant. (City of Tombstone vs. Macia, 245 Pacific Reporter, 677.) The Court said:

"It should be noted that the existence of an element of business for profit is not sufficient to determine whether the proposed activity is for a public purpose or not. . . .

"The Supreme Court of Maine, in deciding that a city might, in pursuit of a public purpose, establish a wood and coal yard for the sale of fuel to its inhabitants, with which it was difficult for the citizens to provide themselves, due to the existence of monopolistic combinations, makes this remark:

"'It requires no argument to prove that coal is as conducive to the health, comfort, and convenience of the inhabitants of this northern latitude as is ice to that of the inhabitants of Georgia.' . .

"The question of what is a public purpose is a changing question, changing to suit industrial inventions and developments and to meet new social conditions. . . .

"If a city may spend the public revenues upon public ornaments and embellishments, upon concerts or opera houses, for the mere recreation or pleasure of the public, why may it not spend a portion of those revenues that its inhabitants may have such a necessity as ice in a torrid climate?"

Contract Excluding Sale of Property to Members of a Certain Race Held to Be Valid

There is undue excitement in the public press over the effect of the decision handed down on May 24 by the highest court of the land in the case of Curtis vs. Corrigan. There the United States Supreme Court declared that a contract among owners of a tract of land in Washington, D. C., that no one of them would sell any part of his holdings to a Negro, was not unconstitutional. Referring to provisions of the United States Constitution which were claimed to invalidate the contract, the Court said:

"It is obvious that none of these amendments prohibited private individuals from entering into contracts respecting the control and disposition of their own property; and there is no color whatever for the contention that they rendered the indenture void."

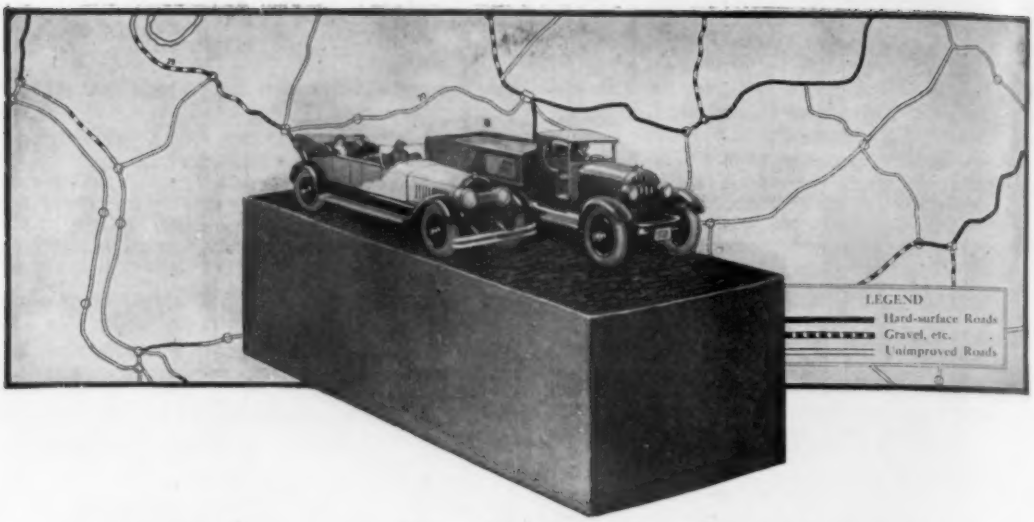
The principle involved in the covenant made by the owners of the tract in Washington that they would not sell to Negroes was merely the exercise of a fair and reasonable right to protect the commercial and enjoyment values of the holdings of the respective parties to the agreement, on a par with those covenants under which exclusion of industries, apartment houses, dwelling-houses costing less than a certain amount, etc., from restricted districts is secured.

In the Absence of Statute Creating Liability, City Not Liable for Failure to Furnish Adequate Water-Supply for Fire Protection

In the recent case of Larimore vs. Indianapolis Water Company and the City of Indianapolis, 151 Northeastern Reporter, 333, it was decided by the Indiana Supreme Court that defendants were not liable to plaintiff on account of water pressure being insufficient to enable extinguishment of a fire which burned plaintiff's building. The Court held that, in the absence of a statute creating such liability, neither a city nor a water company can be held responsible in such a case, although clearly negligent. The opinion says:

"At common law a city or other municipal corporation is not liable to an owner of property within its corporate limits destroyed by fire, on account of negligence of the municipality and its officers in failing to provide suitable fire apparatus or an adequate supply of water with which to extinguish the fires by which such property is consumed. . . .

"Nor is a water company liable at common law whose only obligation to furnish water with which to extinguish such fires arises out of a contract between it and the city that binds the company to supply the city with water for that purpose."



The only reason that

there are not more miles of improved roads at your service, is the brutally excessive annual cost of maintaining and repairing inferior pavements already laid.

Keeping old roads open is the leak through which your tax-dollars are pouring.

Those communities in which vitrified brick pavements were laid 20, 25, 30 and 35 years ago are the fortunate ones. Many of those streets and roads have not yet cost the taxpayers a dollar in repairs. In numbers of instances those veteran brick pavements have outlasted two and three successive nearby pavements built of other materials.

Don't let this upkeep and maintenance leak continue into the future. Advocate to your neighbors, friends and business associates *vitrified brick*—the pavement that outlasts the bonds.

For facts and figures to support your arguments, let us send you official data and information collected from public records.

NATIONAL PAVING BRICK MANUFACTURERS ASS'N
Engineers Building Cleveland, Ohio

Advocate VITRIFIED Brick

THE PAVEMENT THAT OUTLASTS THE BONDS

Zoning Notes

Prepared by Frank B. Williams
Author of "The Law of City Planning and Zoning"
From data collected by the Zoning Committee of New York (233 Broadway)

Recent Zoning Ordinances

KINGS POINT, N. Y.—Ordinance, May 26, 1926
SKANEATELES, N. Y.—Ordinance, July 30, 1926

Recent Zoning Decisions

GEORGIA.—*Morrow v. City of Atlanta* (*Supreme Court*), 133 S. E. 345. Under the ruling of this court in Smith v. Atlanta, 132 S. E. 66, the municipal authorities of the city of Atlanta are not authorized to interfere with the use of plaintiff's garage in the rear of his residence for carrying on the lawful business of storing and repairing automobile tires.

There was no evidence to show that the existence of the business in question tends to jeopardize neighboring property by fire or otherwise, or that a nuisance had been created or was being maintained; and even if so, a proceeding to abate the nuisance should have been applied for as the proper remedy.

In so far as the zoning ordinance of the city of Atlanta seeks to deprive its owner of the use of real estate designated as an apartment zone, in the pursuit of a lawful business, it is unconstitutional and void.

NEW YORK.—*Matter of Fordham Reformed Church v. Walsh, et al.*, constituting Board of Appeals of City of New York (Appellate Division), reported in *New York Law Journal* July 13, 1926. "The Board of Appeals is vested with authority to determine finally questions of fact involved in an application to it which is not to be reviewed by the Court unless there are presented jurisdictional defects."

NEW YORK.—*People v. Wolf* (*County Court*), 127 Misc. 382. The defendants were charged with violating an ordinance forbidding, within the limits of the village of Kings Point, any person to erect, maintain, or display any advertising device except signs solely advertising real property for sale or rent, placed on the real property so advertised, not nearer than 25 feet to a public highway, or, in the case of developed property, not nearer than the building line; provided that no such sign shall be so placed as to obstruct the clear view of the highway from any direction or shall be of greater dimensions than 4 feet square.

It was decided below that the ordinance could be sustained on esthetic grounds. *Held*, reversing the decision below, that the ordinance was not a reasonable exercise of the police power. It was found as a fact that the village is made up exclusively of private residences. It does not appear from the opinion in the County Court, but is a fact, that under a zoning ordinance adopted January 2, 1925, the village is entirely one residential use district.

The County Judge holds that the ordinance contested in the case cannot be sustained on esthetic grounds, since the police power cannot be exercised for that purpose; that the discrimination between advertising generally, and advertising of the property upon which the advertisement is placed, is improper; and that the ordinance could not be sustained even on esthetic grounds, since the permitted advertising might be ugly, and the advertising disallowed might be so designed and executed as to be beautiful.

NEW JERSEY.—*Portnoff v. Bigelow, Building Superintendent of City of Newark* (*Supreme Court*), 133 Atl. 534. Forbidding a large public garage in a block occupied almost exclusively by residences, and zoned for residential purposes, is not unreasonable, and mandamus to compel the issuance of a building permit for such a garage, *held* properly refused.

Exclusion of Advertising Signs from Residential Districts

In comment upon the decision in the New York State case of People v. Wolf, mentioned in the accompanying notes, it may be said generally that, unfortunate as it may be that esthetics is not—as yet, at least, in our law—a sufficient basis by itself for the exercise of the police power, the Judge seems to be entirely justified in his statement that, except by constitutional amendment in Massachusetts, and by decision in the Philippines, this is the fact. Some of the observations of the Court, however, are less obviously sound. The discrimination between advertising generally and advertising of property placed on the property advertised, seems justifiable, and is frequently made in modern zoning ordinances; and surely, in a residential neighborhood any advertising signs, however beautifully designed and executed, are so out of place as to be an offense to all people who appreciate real beauty.

The question also arises, if the zoning ordinance making the village a residential district was valid,—and its validity, apparently, was not called in question in this proceeding—why all advertising structures, except small signs advertising activities on non-conforming premises and similar concessions to keep the restriction from being unreasonably drastic, could not have been forbidden on the ground that they are not residential structures, as they are under the zoning regulations of New York City, and a multitude of others, never as yet questioned on that ground.

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Buenos Aires, R. A.
Tokyo, Japan

NEW JERSEY.—*Eaton v. Town of Montclair (Supreme Court)*, 133 Atl. 400. The municipality may not, under the police power, forbid the owner of land to erect a corner store because the intersection is dangerous and the store would obscure the view of the highway.

On this point the Court says:

"The respondents contend that the erection on the street line of a store building upon the relator's premises will constitute a menace to the safety and general welfare of the people of the town of Montclair. It is argued that this corner is an unusually dangerous one; that on one side is the high bank of the railroad, and, if a store be permitted to be erected on the opposite corner, there will be no opportunity for a view in either direction. It is said that this situation is a menace to the safety of the users of the highway, and for this reason it is justifiable to withhold the building permit. In other words, the respondents contend that, if one owns a piece of property at the junction of two roads, for the safety of the public the owner should not be permitted to erect a building thereon, because the erection of such a building would tend to obscure the view of the highway other than the highway upon which one is at the time traveling. It is insisted that this is a proper exercise of the police power.

If this view were adopted, it would result in the owner of a tract of land, presumably worth about $20,000, being unable to derive any revenue from it, for one kind of a building would be as much of an obstruction of the view as any other. The only thing which the owner would under such circumstances derive from the ownership of the land would be the privilege of paying taxes and assessments thereon. We think this is not what is intended under the statute as in the interest of the safety of the public. This prohibition relative to the use of the property would not be for the safety of the entire public. It would be merely for the safety of the particular members of the public using the highway."

NEW JERSEY.—*Oxford Construction Co. v. City of Orange (Supreme Court)*, 133 Atl. 477.

The premises of the relator are located in a so-called "Residence A" zone. In this zone the ordinance prohibits the erection of any building for use other than for a dwelling for one family. In this zone there is also a height limit of 2½ stories, as well as prescribed yards, rear yards, and side yards.

Held, following the Nutley case, that an ordinance excluding apartment houses from a residential zone is to that extent void; that an ordinance applying throughout the city, which regulates heights and yards, is valid if reasonable, but if designed merely to aid in segregating different classes of buildings in different zones, it is unreasonable.

The Court says that in this case the facts are not set forth with sufficient fulness for it to determine whether the height and yard provisions are reasonable; but goes on to say, significantly:

"There is no reason why an apartment house should be limited as to height to 2½ stories in one section of a city and be permitted to be built to a greater height in other sections of the same city."

PENNSYLVANIA.—*In re Appeal of Thompson and the Theta Delta Psi Fraternity, from decision of Board of Appeals of City of Pittsburgh, Court of Common Pleas*, June 29, 1926. Sec. 1 of Zoning Act of June 21, 1919, P. L. 570, does not authorize cities of the second class to require a certificate of occupancy where there has been no structural alteration in the building.

RHODE ISLAND.—*City of Providence v. Stephens (Supreme Court)*, 133 Atl. 614. Separation of business and industrial activities of the city from its residential portion, reasonably administered, may be supported in behalf of the public safety, public health, comfort, and convenience. Private advantage or purely esthetic considerations do not supply sufficient basis for the exercise of the police power.

Authority granted to cities under Pub. Laws 1921, c. 2060, sec. 1 (Gen. Laws 1923, c. 57, Sec. 1) as amended by Pub. Laws 1923, c. 430, Sec. 1, to establish residential districts from which apartment houses are excluded, *held* within powers of the Legislature.

The Municipal Bond Market

By Sanders Shanks, Jr.

Editor, *The Bond Buyer*

AUGUST proved to be a dull month in the municipal bond market. Offerings of importance were in small number, as indicated by the subjoined list. The largest issues of the month were $5,000,000 floated by the Chicago Sanitary District and $4,000,000 by the Chicago South Park District. An interesting offering was a city of Minneapolis, Minn., $2,000,000 bond issue. That city sold an identical issue last May to a syndicate of New York bankers, and the same purchasers bought the new issue at exactly the same prices as was paid for the bonds of the earlier issue. The incident serves to indicate the firmness of the municipal bond market in the face of the abnormal dullness of recent weeks.

The largest piece of financing that will probably come on the market during the rest of this year is the state of New York's $28,475,000 4 per cent loan, scheduled for sale on September 1. The state has sold no bonds since September, 1924. In view of this fact and inasmuch as the credit of New York State is second only to that of the United States Government, the market is expected to absorb this substantial issue readily at premium prices.

The following is a list of the more important issues of the month:

Amount	Issue	Maturity	Rate %	Yield %
$820,000	Maryland	1929-41	4½	4.07
300,000	Harrisburg, Pa.	1927-56	4¼	4.13
2,000,000	Minneapolis, Minn.	1927-51	4 & 5	4.16
4,000,000	Chicago, Ill., South Park Dist.	1927-46	4	4.16
390,000	White Plains, N. Y.	1929-57	4½	4.19
1,000,000	Scranton, Pa.	1932-56	4¼	4.22
5,000,000	Chicago, Ill., Sanitary Dist.	1927-46	4½	4.23
865,000	Des Moines, Iowa, Ind. Sch. Dist.	1946	4 & 4½	4.24
903,000	Monmouth Co., N. J.	1927-51	4¼	4.24
500,000	Dayton, Ohio	1927-51	4½	4.31
1,050,000	Birmingham, Ala.	1927-46	4½	4.37
998,000	Asbury Park, N. J.	1927-66	4½	4.48
1,000,000	Buncombe Co., N. C.	1929-55	4¾	4.53
500,000	Orange Co., Fla.	1929-56	5	5.23

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Municipal and Civic Publications

Prices do not include postage unless so stated

Municipal Government in the United States.—By Thomas Harrison Reed, Professor of Municipal Government and Director of the Bureau of Government, University of Michigan. The Century Co., New York. 1926. VII + 378 pp. $3.00.

"This is not a controversial book. Its purpose is to tell the history of city government in the United States with sufficient thoroughness to make clear the municipal politics and institutions of today. Much space is given to the last forty years of development as being far more interesting and significant than the years that preceded them. The style is enlivening, making it a book for the general reader as well as for the college student. Of particular interest is the chapter on "The Era of Reform." The point is here emphasized that indifference to city elections, and the traditions of easy-going government, are most to be feared in the future of American city government, and that there is needed in city affairs the expert who knows how to do the job entrusted to him. "The only universal formula for good administration is to put it in the hands of those who know how to administer." This book is of especial value to readers of The American City in connection with the author's annual review of municipal progress in The Municipal Index.

Forestry Legislative Survey for 1926.—Published by the American Tree Association. 50 pp. A summary, by states, of legislation and activities for forestry. Containing also a list of state forestry officials, and the text of the original and the amended Clarke-McNary Forestry Act. (Apply to Charles Lathrop Pack, President, American Tree Association, Washington, D. C.)

Fire Prevention Week.—Material published by the National Fire Protection Association, 40 Central Street, Boston, Mass.: Fire Prevention Week Handbook—Suggestions for Guidance in Planning the Observance of Fire Prevention Week, 48 pp., illustrated, 15 cents; Supplement to the Handbook—fire facts, texts, slogans, and special articles, 16 pp., 5 cents; circulars; posters; fire prevention stamps. (Apply to the Association.)

What It Means to Zone.—By John M. Kitchen, Assistant Engineer on Zoning, Town Planning Commission of Ottawa. Published by the Town Planning Institute of Canada, Ottawa, Ont. 1926. 16 pp. 50 cents. A summary of the principles involved in the Zoning By-Law as submitted to the Town Planning Commission of Ottawa by Noulon Cauchon, Chairman and Technical Adviser, and recommended by the Commission to the City Council for adoption. (Apply to author, who is also Honorary Secretary of the Institute, City Hall, Ottawa, Ont.)

Stream Pollution Control.—The following articles, with discussion, in the August, 1926, issue of the *American Journal of Public Health:* Domestic and Industrial Wastes in Relation to Public Water-Supply, by Abel Wolman; Administrative Problems in the Control of Pollution of Streams, by George W. Fuller, consulting engineer, New York; The Legal Aspects of the Stream Pollution Problem, by John H. Fertig, Pennsylvania Legislative Reference Bureau, Harrisburg, Pa.; Administrative Phases of Stream Pollution Control, by John Emerson Monger, M.D., State Director of Health, Columbus, Ohio. 28 pp. (Apply to American Public Health Association, 370 Seventh Avenue, New York.)

The Effect of Population Upon Ability to Support Education.—Prepared by Harold F. Clark, Associate Professor of Education, Indiana University, for the Bureau of Cooperative Research, School of Education, Indiana University. *Bulletin* of the School of Education, Indiana University, September, 1925. 29 pp. Maps, tables. Developing a formula that is said to be a fairly satisfactory measure of the effect of population upon ability to support schools. 50 cents. (Apply to University Bookstore, Bloomington, Ind.)

Maternal Mortality.—The Risk of Death in Childbirth and from All Diseases Caused by Pregnancy and Confinement. By Robert Morse Woodbury, Ph.D. Children's Bureau publication No. 158. 1926. 163 pp. Many tables. 25 cents. (Apply to Government Printing Office, Washington, D. C.)

The Government of American Cities.—By William Bennett Munro, Ph.D., LL.B., Jonathan Trumbull, Professor of American History and Government in Harvard University. The Macmillan Company, New York. 1926. Fourth edition. VIII + 491 pp. $3.50.

As American city government has greatly changed since before the war, this new edition of Professor Munro's book presents a complete revision of the first edition, which appeared in 1912. It deals mostly with the organization of city government rather than with its administration, showing what the cities have to work with, instead of how the mechanism is used. The governments of New York, Chicago, Philadelphia, and Boston are described in detail, after the general discussion, which proceeds through these divisions of the study: an outline of the history of American city government; the city's relation to the state, the city charter; the legal phases of city government; political parties and the processes of practical politics; the agencies of popular government—initiative, referendum, and recall; the forms of city government, the administrative departments; civil service; municipal courts; the city government as a business; some standards of judgment as to whether a city government is good or bad. The author's well-known clear and lively style holds the interest throughout.

State and Municipal Bonds.—By William L. Raymond. Financial Publishing Company, Boston; George Routledge & Sons, Ltd., London. 1923. XIII + 388 pp. $4.00.

Although published in 1923, this book has not had previous mention in The American City. The author's purpose is to present all the facts which experience has shown should be considered in estimating the actual value of state and municipal bonds. In so doing he discusses the general character of each state's population and its resources and its constitutional provisions for taxation and debt limitations, and gives a detailed analysis of its debt history; also the laws and practices as to municipal, county, and district indebtedness; the practices as to assessed valuation of property and taxation; compares serial bonds with sinking-fund bonds; and discusses the purposes for which bonds may be issued and the relation of such purposes to safety.

Final Report of Bronx Parkway Commission.—December 31, 1925. 111 pp. Illustrated. Apply to the Commission, Bronxville, N. Y.

This report is made to the Governor and Legislature of the State of New York, the Board of Estimate and Apportionment of the City of New York, and the Board of Supervisors of Westchester County, N. Y. The parkway is now completed, and this report reviews the whole undertaking from every point of view that is of interest to the bodies to which it is made. It is an exceedingly attractive publication, the illustrations being of unusual interest, and it presents the record of an accomplishment that should be of value to those concerned in parkway projects in other cities.

Cork—A Civic Survey.—A carefully prepared, detailed study of Cork, Ireland, prepared by the Cork Town Planning Association and published by the University Press of Liverpool, and Hodder & Stoughton, Ltd., London. 1926. VIII + 30 quarto pp., besides many views and maps. Cork is, at the same time, a seaport, a distributing center, a market town, a manufacturing city, a residential area, and an educational center, and the facilities for the development of all these phases of the city are not provided with orderliness and appropriateness. This survey seeks to show the existing features and activities of the city, its deficiencies, conditions, and tendencies, and by this means to make evident on what a successful town plan must be based. 10 shillings. (Apply to Hodder & Stoughton, Ltd., Warwick Square, London, E. C. 4, England.)

The Cost of Government, Detroit, Mich., 1926-1927.—The June 30, 1926, issue of *Public Business*, published by the Detroit Bureau of Governmental Research, Inc. 20 pp. Tables. (Apply to the Bureau.)

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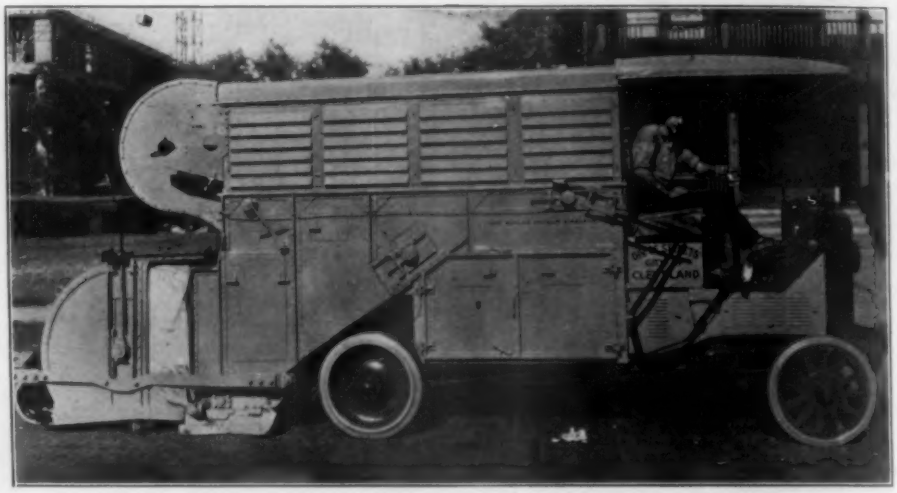

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Planning Problems of Town, City and Region.—Papers and discussions at the Eighteenth National Conference on City Planning, held at St. Petersburg and Palm Beach, Fla., March 29-April 1, 1926. Published for the Conference by Wm. F. Fell Co., Philadelphia. 1926. VI + 213 pp. $2.50 postpaid.

This volume includes the following papers: New Communities Planned to Meet New Conditions, by John Nolen; The Architect and City Planning, by William F. Steele. Planning Opportunities and Problems in Periods of Rapid Development, by Carl C. McClure; Regulating Land Subdivision, by Irving C. Root; The City Cannot Protect Its Homes, Prevent Misplaced Streets, Keep Good Street Layouts, or Acquire Permanent Playgrounds Without State Enabling Acts, by Edward M. Bassett; Regulation of Outdoor Advertising, by Mrs. W. L. Lawton; The Planning of Pleasure Resort Communities, by Frederick Law Olmsted; The Florida Water-Front, by James F. Glenn; The Place of the Railroad in the City Plan, by Harland Bartholomew; What City and Regional Planning Can Do Toward the Solution of the Traffic Problem, by A. B. Barber; What City Planning Means to the Community, by Allen D. Albert; Selling City Planning, by Carl Hunt; City Planning as a Subject for Undergraduate Courses in Colleges, by George B. Zug; A State Plan for Florida, by Mrs. Robert M. Seymour; The Place of the East Coast in a State Plan for Florida.

The Preservation of Rural England.—The Control of Development by means of Rural Planning. By Patrick Abercrombie. Published by the University Press of Liverpool, Ltd., and Hodder & Stoughton, Ltd., London. 1926. Reprinted from *The Town Planning Review*. 56 pp. The tendencies toward change in the English countryside are the development in farming methods, rural industries, rural housing, social and recreational facilities, and afforestation; the decentralization of cities; and motor transport. This valuable study shows what the assets of the countryside are; the details of the new development requiring control; what has been done and what may be done to preserve the beauty and distinction of the rural landscape, and through what organizations. A plea is made for greater interest and education in landscape design. 1s 2d postpaid. (Apply to Hodder & Stoughton, Ltd., Warwick Square, London, E. C. 4, England.)

The Wirral (Cheshire) Regional Planning Scheme.—The Report of the Joint Committee of Local Authorities. The Wirral Peninsula lies between the estuaries of the Mersey and the Dee, embraces the whole of the Hundred of Wirral, and extends northwest from the city of Chester to the Irish Sea. This is a finely illustrated study of the characteristics, conditions, and possibilities of the area for the extension of commercial and industrial interests, for residential accommodation, and for the preservation of natural beauties. 27 quarto pp. with map in pocket. $1.50 postpaid. (Apply to the Town Clerk, Town Hall, Birkenhead, England.)

Directory of Local Commercial Organizations in New England.—Prepared and published by the Boston Chamber of Commerce New England Affairs Bureau, Boston, Mass. May, 1926. 32 pp. Giving the name of the community; its estimated 1925 population; its principal manufactured products, its commercial organization; the names of the President and Secretary of each organization; the month of the annual meeting; the annual membership dues; a list of the slogans of the organizations; the Secretary's work—full-time, part-time, paid, or free of charge; list of organizations issuing a regular publication to their members. (Apply to the Bureau, as above.)

Beautifying the Church Grounds.—A 16-page illustrated pamphlet issued by the Committee on Church Garden Clubs, of the National Plant, Flower and Fruit Guild, 70 Fifth Avenue, New York. Showing the need and the possibility of beautifying church grounds under even discouraging conditions, giving detailed instructions, and stating how the Committee can be of assistance. (Apply to the Committee.)

Scranton Chamber of Commerce.—Volume 2, Number 1, of *Scranton*, the official publication of the Chamber (July, 1926). This issue contains a number of interesting articles on the new building of the Chamber. One of the building's special features is the fine pipe organ presented to the Chamber by President L. A. Watres, to serve as a municipal concert organ. Ralph A. Amerman is the Chairman of the Building Committee. Raymond B. Gibbs is the General Secretary of the Chamber. (Apply to the Chamber.)

Permanent International Association of Road Congresses.—Report of the Fifth Congress of the Association, held in Milan, Italy, 1926. Separate pamphlets giving papers by authorities and experts on the following subjects: Special Roads Reserved for Motor Traffic; Development and Planning of Towns in Interests of Traffic; Census of Traffic (search for uniform international bases for adoption in every country). (Apply to the office of the Secretary of the Association, I, Avenue de'Iéna, Paris, France.)

Salaries of City Officials in Wisconsin, 1926.—Compiled by Lorna L. Lewis from replies from the 143 cities of Wisconsin to a questionnaire sent out by the Municipal Information Bureau, University Extension Division, University of Wisconsin, Madison, Wis. Information Report No. 50. July, 1926. Tables. 11 mimeographed pp. (Apply to Ford H. MacGregor, Chief of Bureau.)

Industrial Survey, Galesburg, Ill.—Prepared by the Galesburg Chamber of Commerce. January 1, 1926. 35 quarto pp. Illustrated. Folding map. Covering all the facilities and advantages of this city of over 29,000 manufacturers, business and professional men, and home-makers. (Apply to the Chamber.)

Branch Libraries in Field Houses.—Material gathered by members of the staff of the St. Louis Public Library, edited and compiled by Ruth Robl, Librarian of the Sherman Park Branch, with a list of books and articles on Community Houses, by Florence Crutcher. The *Bulletin* of the St. Louis Public Library for July, 1926. Showing what has been done in other cities to further cooperation between public libraries and field houses—community houses used throughout the year. 28 pp. Illustrated. (Apply to the St. Louis Public Library.)

Highway Trees and Roadside Improvements for Connecticut.—By P. L. Buttrick. Publication No. 16 of the Connecticut Forestry Association, 205 Prospect Street, New Haven, Conn. June, 1926. Pocket size. 32 pp. Illustrated. This valuable little pamphlet is the result of a Shade Tree Conference held jointly by the State Forestry Association and the Yale School of Forestry, February 6, 1926, and is full of practical suggestions for preserving and developing the scenic beauty of the highways of Connecticut. (Apply to the Association.)

Manual of First-Order Triangulation.—By C. V. Hodgson, Assistant Chief, Division of Geodesy, U. S. Coast and Geodetic Survey. Special Publication No. 120. Summarizing the methods prevailing in the U. S. Coast and Geodetic Survey in executing first-order triangulation and base measurement. VI + 185 pp. Views, diagrams. 40 cents. (Apply to Government Printing Office, Washington, D. C.)

Street and Highway Safety.—A report presented to the League of Minnesota Municipalities at its Thirteenth Annual Convention at Virginia, Minn., on June 24, 1926, by the Committee on Traffic and Traffic Conditions. It gives an analysis of the conditions in Minnesota and in the United States resulting from the rapidly increasing street and highway traffic, and submits recommendations for decreasing these hazards to life and property. 15 pp. in the July, 1926, issue of *Minnesota Municipalities*. (Apply to the League, Minneapolis, Minn.)

Community Advertising.—Two pamphlets. Recreation and Community Advertising; 12 pp., an address given at the meeting of the American Community Advertising Association at the International Advertising Convention of the Associated Advertising Clubs of the World, in Philadelphia, Pa., June, 1926; discussing the need of taking stock of community recreation assets, putting them in charge of trained people, and using in the community advertising the human values these assets represent. How Railroads Advertise Communities, by C. B. Sudborough, General Traffic Manager, Pennsylvania Railroad; an address at the same convention; "A railroad ought to be the best friend and helper of every community which it serves." (Apply to Don E. Mowry, Secretary, American Community Advertising Association of the Associated Advertising Clubs of the World, 401 Cantwell Building, Madison, Wis.)

Newport, R. I.—Report of Joint Committee on City Planning, prepared by Arthur A. Shurtleff for the Newport Improvement Association and the Newport Chamber of Commerce. 40 quarto pp. with views, drawings, and maps. The various divisions of the study are arranged in paragraphs with distinctive headings and illustrations, so that each point may be definitely made. Every section of the report is carefully worked out to present practical means of increasing the beauty and the assets of this important city. (Apply to the Joint Committee on City Planning, Newport, R. I.)

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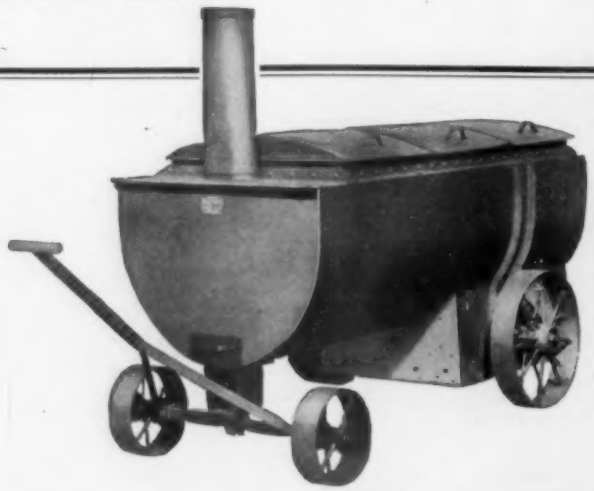

Letchworth's Coming-of-Age.—The July, 1926, issue of *Garden Cities and Town Planning* is devoted largely to Letchworth in recording the celebration, by the residents, of the foundation of the Garden City, and the celebration by the City Fathers of Letchworth Civic Week. A number of interesting articles set forth the progress which has been made at Letchworth in combining rural with urban life, and the various personalities that have furthered this undertaking are made real. 30 pp. 25 cents. (Apply to THE AMERICAN CITY.)

Inter-District Traffic Circuit, Pittsburgh, Pa.—A report of the City Council of Pittsburgh; a part of the Major Street Plan Proposed by the Citizens Committee on City Plan; submitted in preliminary form December 28, 1925, and issued in this present form March, 1926, by the City Planning Commission of Pittsburgh. 22 quarto pp., besides 13 plates and other drawings. Presenting a plan for effecting a by-pass thoroughfare system to carry through traffic around the central business district and to facilitate traffic movement between the various geographical sections of the city. Morris Knowles is Chairman of the City Planning Commission; U. N. Arthur, Chief Engineer. (Apply to the Commission.)

Motor Carriers and the State.—A study in contemporary public utility legislation, by David E. Lilienthal and Irwin S. Rosenbaum. 19 pp. in *The Journal of Land and Public Utility Economics* for July, 1926. $1.25. (Apply to the *Journal*, A. W. Shaw Company, Chicago.)

Land Values and Population.—By Arthur J. Mertzke. 12 pp. in the July, 1926, issue of *The Journal of Land and Public Utility Economics*. Diagrams, tables. "The causes of land values in any given city are found rather in the natural and social opportunities which its location affords." (Apply to the *Journal*, A. W. Shaw Company, Chicago, Ill.)

Industrial Survey of Evansville, Ind.—Prepared by the Industrial Department of the Evansville Chamber of Commerce. April 1, 1926. A mimeographed report, made up of 25 sections covering important data furnished by authentic sources and carefully analyzed and interpreted, to be used by the Chamber as a basis for community development and industrial expansion. Each volume, $2. (Apply to Arthur E. Gilman, Manager of the Industrial Bureau of the Chamber of Commerce.)

The Flow of Water Through Culverts.—By David L. Yarnell, Drainage Engineer, U. S. Department of Agriculture, in collaboration with Floyd A. Nagler, Associate Professor of Mechanics and Hydraulics, University of Iowa, and Sherman M. Woodward, Professor of the same department. A report of an investigation by the University of Iowa in cooperation with the U. S. Department of Agriculture Bureau of Public Roads. Bulletin 1, Studies in Engineering, University of Iowa. June, 1926. 128 pp. Many illustrations, tables, diagrams. (Apply to the University, Iowa City, Iowa.)

Pennsylvania Housing and Town Planning Association.—Second Annual Report, for year ending May 1, 1926. 16 pp. Illustrated. Summarizing housing conditions in municipalities which it was thought would give a fair cross-section of conditions, problems, and needs in this field. also information on housing legislation in the state and the legal standing of zoning. There is a table showing the extent of sewers and disposal plants and the expenditures for sewers and paving in 1925, also a tabulation of local building and zoning ordinances now in force in leading municipalities in Pennsylvania. (Apply to the Association, 133 South 12th Street, Philadelphia, Pa.)

American Concrete Institute.—Proceedings of the Twenty-second Annual Convention of the Conference, held at Chicago, Ill., February 23-26, 1926. 796 pp. Diagrams, tables. Papers on all the main features of the field of concrete construction, with reports of committees. (Apply to the Institute, 2970 West Grand Boulevard, Detroit, Mich.)

Fight Tuberculosis in Detroit.—The February, March, April, 1926, issue of *City Health*, the monthly bulletin of the Detroit Department of Health. 24 pp. Interesting illustrations. Discussing all phases of the work and showing its great value. (Apply to the Department.)

Architectural Acoustics.—Circular No. 300 of the Bureau of Standards, U. S. Department of Commerce. February 25, 1926. 9 pp. Stating the fundamental principles governing the construction of an acoustically successful auditorium, and working out an example showing their practical application to the planning of a new auditorium or to the correction of one that has proved to be unsatisfactory. 5 cents. (Apply to Government Printing Office, Washington, D. C.)

Reports Received

BUFFALO, N. Y.—Annual Report, Department of Health, 1925

CHICAGO, ILL.—Annual Report, Treasurer, 1925

CHICAGO, ILL.—Annual Report, Comptroller, 1925

COOK COUNTY, ILL.—Annual Report, Auditor, Forest Preserve District, 1925

CINCINNATI, OHIO.—Annual Report, Department of Street, Sewer and Catch-Basin Cleaning, 1925

DENVER, COLO.—Annual Report, Board of Adjustment, Zoning, year ending February 11, 1926

EASTON, PA.—Annual Report of the City, 1925

MARSHALL, MO.—Annual Financial Report, Board of Public Works, 1925

MINNEAPOLIS, MINN.—Budget Facts and Financial Statistics, Board of Estimate and Taxation, 1926

ONTARIO, CANADA.—Annual Report, Hydro-Electric Power Commission, year ending October 31, 1925

Street and Highway Safety to Be Main Theme of National Safety Congress

EDUCATION, engineering, and law enforcement in their relation to the public safety movement will be the three topics to receive greatest consideration at the annual convention of the National Safety Council, in Detroit, October 25-29.

The speakers will include men who are interested in the traffic problem from every angle. A noted statistician will explain why automobile accidents occur. State officials will tell of the part their commonwealths are taking to lower the annual toll. Police chiefs will lay stress on the trouble they have in making motorists and pedestrians obey the law. Traffic court judges will relate their experiences in punishing offenders. Educators will dwell on the mental causes of accidents. Engineers will point out the importance of research work, city planning ordinances, traffic signals, standardization of signs and pavement markings, and automobile club officials will present the views of motor vehicle operators. Even the farmers' viewpoint will be given consideration.

It is expected that there will be considerable discussion of the recommendations adopted by the Second National Conference on Street and Highway Safety, over which Secretary of Commerce Herbert Hoover presided as chairman. How to enact and enforce these model uniform laws in every state in the Union will be given consideration.

How communities can organize to conduct all-year-round safety campaigns will be told by men engaged in this work.

Police commissioners will explain their methods of collecting, tabulating and analyzing accident statistics. How these records can be used as preventive measures will be discussed. There will be a special session for police chiefs and other city officials interested in speed limits and enforcement, the relation of the police to traffic courts, the relation of police to community safety councils, and uniform city ordinances and regulations.

The mayors of the various cities will have a luncheon all their own.

Two Streets in Burlington, Iowa, resurfaced with Stanolind Paving Asphalt

Good Pavements at Low Cost

Mr. Thomas J. Smith, former Mayor of Burlington, Iowa, is one of the many public men who favor the resurfacing of old streets. Mr. Smith, in a report covering this question, says:

"Each year many thousands of paved streets and highways, after giving long years of service, reach a stage that calls for some kind of improvement. Some of these pavements have considerable merit as foundations and should be utilized as such.

"I have for the past two or three years been collecting data on street and roadway paving. This data has been collected from such cities as Cedar Rapids, Clinton, Davenport, Des Moines and Dubuque. All of these cities have resurfaced their old brick, macadam, concrete, and gravel streets with asphalt, and have found it very satisfactory.

"No other construction material is more suitable than asphalt. In fact, asphalt may well be termed the universal salvaging material. Our own first resurfacing job was laid on brick paving which had been down for a period of twenty to thirty years.

"Asphalt for this improvement was furnished by the Standard Oil Company (Indiana). I have personally investigated this improvement during the last few weeks, and find that the resurfacing has stood up admirably under heavy traffic."

The street to which Mr. Smith refers was resurfaced with

Stanolind Paving Asphalt

Many towns and municipalities throughout the Middle West are constructing excellent pavements and at the same time are saving money by following this policy of salvaging old pavements. The highway engineers of the Standard Oil Company (Indiana) will make a survey for any community which is contemplating street improvement, and will recommend the correct grades of asphalt. No charge is made for this service.

STANDARD OIL COMPANY

(INDIANA)

General Offices: 910 S. Michigan Avenue CHICAGO, ILLINOIS

ILLINOIS
Chicago
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Joliet
Peoria
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N. DAKOTA
Fargo
Minot

WISCONSIN
La Crosse
Milwaukee

MINNESOTA
Duluth
Mankato
Minneapolis

MISSOURI
Kansas City
St. Joseph
St. Louis

On the Calendar of Conventions

SEPTEMBER 1-3.—TORONTO, ONT.
Ontario Municipal Association. Annual convention. Secretary, Horace L. Brittain, 21 King Street East, Toronto, Ont.

SEPTEMBER 7-9.—PHILADELPHIA, PA.
National Association of Gardeners. Annual meeting. Secretary, Dorothy Ebel, 286 Fifth Avenue, New York.

SEPTEMBER 7-10.—SPRING LAKE, N. J.
Illuminating Engineering Society. Annual convention. General Secretary, L. H. Graves, 31 West 46th Street, New York.

SEPTEMBER 9-10.—DARLINGTON, S. C.
South Carolina Commercial Secretaries Association. Annual meeting. Secretary-Treasurer, George T. Barnes, Greenwood, S. C.

SEPTEMBER 14-17.—RICHMOND, VA.
Atlantic Deeper Waterways Association. Annual convention. Secretary-Treasurer, Wilfred H. Schoff, 1405 Widener Building, Philadelphia, Pa.

SEPTEMBER 14-17.—PROVIDENCE, R. I.
New England Water Works Association. Annual convention. Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 20-23.—ATLANTIC CITY, N. J.
American Institute of Accountants. Annual convention. Secretary, A. P. Richardson, 135 Cedar Street, New York.

SEPTEMBER 21-23.—COLORADO SPRINGS, COLO.
International City Managers' Association. Annual convention. Executive Secretary, John G. Stutz, Lawrence, Kans.

SEPTEMBER 21-24.—ASHEVILLE, N. C.
International Association of Municipal Electricians. Annual convention. Secretary, Erwin H. Benz, Municipal Building, West New York, N. J.

SEPTEMBER 28-29.—TORONTO, ONT.
Canadian Tax Conference of the Citizens' Research Institute of Canada. Annual conference. Director, Horace L. Brittain, 21 King Street East, Toronto, Ont.

SEPTEMBER 28-OCTOBER 1.—WASHINGTON, D. C.
American Society of Sanitary Engineering. Annual meeting. Secretary, James R. Walker, 105 Cummings Street, Boston 18, Mass.

OCTOBER 4-7.—WASHINGTON, D. C.
American Red Cross. Annual convention. Secretary, Mabel T. Boardman, National Headquarters, Washington, D. C.

OCTOBER 4-7.—WASHINGTON, D. C.
National Tuberculosis Association. Annual meeting. Executive Secretary, Frederick D. Hopkins, 370 Seventh Avenue, New York.

OCTOBER 4-8.—CLEVELAND, OHIO
American Electric Railway Association. Annual convention and Manufacturers' Exhibit. Executive Secretary, J. W. Welsh, 292 Madison Avenue, New York.

OCTOBER 4-8.—ATLANTIC CITY, N. J.
Special Libraries Association. Annual meeting. Secretary, Miss Gertrude Peterkin, American Telephone & Telegraph Company Library, 195 Broadway, New York.

OCTOBER 4-9.—ATLANTIC CITY, N. J.; PHILADELPHIA, PA.
American Library Association. Annual conference. Executive Secretary, Carl H. Milam, 86 East Randolph Street, Chicago, Ill.

OCTOBER 5-6.—FARMVILLE, VA.
League of Virginia Municipalities. Annual convention. Secretary, Morton L. Wallerstein, 408 Travelers Buildng, Richmond, Va.

OCTOBER 6-8.—PHILADELPHIA, PA.
American Society of Civil Engineers. Fall meeting. Secretary, George T. Seabury, 33 West 39th Street, New York.

OCTOBER 7-15.—SAN FRANCISCO, CALIF.
All-Western Road Show. Address: P. H. Curtis, Manager, 625 Market Street, San Francisco, Calif.

OCTOBER 11.—MEMPHIS, TENN.
Association of American Cemetery Superintendents. Secretary, W. B. Jones, Highwood Cemetery, Pittsburgh, Pa.

OCTOBER 11-14.—BUFFALO, N. Y.
American Public Health Association. Annual meeting. Secretary, Homer N. Calver, 370 Seventh Avenue, New York.

OCTOBER 15-21.—PITTSBURGH, PA.
American Prison Association. Annual convention. General Secretary, E. R. Cass, 135 East 15th Street, New York.

OCTOBER 18-20.—NEWTON, KANS.
League of Kansas Municipalities. Annual convention. Secretary-Treasurer, John G. Stutz, University of Kansas, Lawrence, Kans.

OCTOBER 18-21.—NORFOLK, VA.
American Association of Port Authorities. Annual convention. Secretary, Tiley S. McChesney, Room 200, Court Building, New Orleans, La.

OCTOBER 18-22.—ATLANTIC CITY, N. J.
Playground and Recreation Association of America. Annual Recreation Congress. Secretary, H. S. Braucher, 315 Fourth Avenue, New York.

OCTOBER 19-20.—SALEM, MASS.
Massachusetts Federation of Planning Boards. Annual conference. Executive Secretary, Edward T. Hartman, 37 State House, Boston, Mass.

OCTOBER 19-22.—NEW ORLEANS, LA.
International Association of Fire Engineers. Annual convention. Secretary, James J. Mulcahey, City Hall, Yonkers, N. Y.

OCTOBER 22.—DAVENPORT, IOWA
Iowa Association of Commercial Organization Secretaries. Annual meeting. Secretary, G. B. Eastburn, Marshalltown, Iowa.

OCTOBER 24-27.—PITTSBURGH, PA.
National Association of Commercial Organization Secretaries. Annual meeting. Secretary-Treasurer, Walter O. Lochner, Chamber of Commerce, Trenton, N. J.

OCTOBER 25-27.—PHILADELPHIA, PA.
International Association of Dairy and Milk Inspectors. Annual convention. Secretary-Treasurer, Ivan C. Weld, Pennsylvania Avenue at 26th Street, Washington, D. C.

OCTOBER 25-28.—HOUSTON, TEXAS.
American Institute of Park Executives. Annual convention. Executive Secretary, Will O. Doolittle, Box 422, Tulsa, Okla.

OCTOBER 25-29.—DETROIT, MICH.
National Safety Council. Annual Safety Congress. Managing Director, W. H. Cameron, 168 North Michigan Avenue, Chicago, Ill.

OCTOBER 27-30.—WHITE SULPHUR SPRINGS, W. VA.
American Institute of Steel Construction. Annual convention. Executive Director, Charles F. Abbott, 285 Madison Avenue, New York.

NOVEMBER 8-10.—ST. LOUIS, MO.
National Municipal League. Annual convention. Secretary, H. W. Dodds, 261 Broadway, New York.

NOVEMBER 8-12.—PINEHURST, N. C.
American Association of State Highway Officials. Annual meeting. Executive Secretary, W. C. Markham, 638 Munsey Building, Washington, D. C.

NOVEMBER 8-12.—WASHINGTON, D. C.
American Society for Municipal Improvements. Annual convention. Secretary, C. W. Sammelman, 3817 Olive Street, St. Louis, Mo.

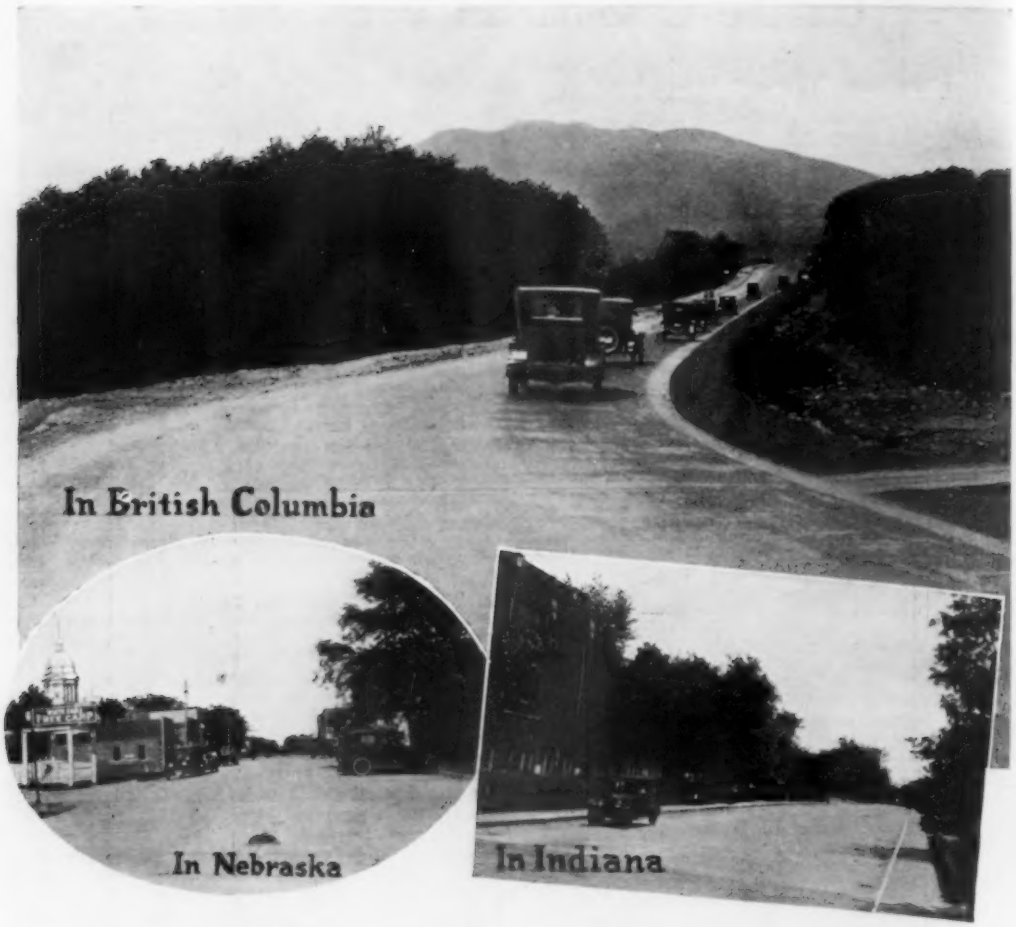
NOVEMBER 9.—ASHEVILLE, N. C.
National Association of Railroad and Utilities Commissioners. Annual convention. Secretary, James B. Walker, 270 Madison Avenue, New York.

NOVEMBER 10-14.—WASHINGTON, D. C.
American Country Life Association. Annual conference. Secretary, Henry Israel, Room 1849, Grand Central Terminal Building, New York.

NOVEMBER 15-19.—PHILADELPHIA, PA.
National Tax Association. Annual meeting. Secretary, Alfred E. Holcomb, 195 Broadway, New York.

DECEMBER 6-9.—NEW YORK
American Society of Mechanical Engineers. Annual meeting. Secretary, Calvin W. Rice, 29 West 39th Street, New York.

JANUARY 10-14.—CHICAGO, ILL.
American Road Builders' Association. Annual convention and Road Show. Secretary, Ethel A. Birchland, 37 West 39th Street, New York.



"Armorplated" concrete paving built by

The Vibrolithic METHOD

Ask for Booklet A-9

American Vibrolithic Corporation
INSURANCE EXCHANGE BUILDING DES MOINES, IOWA
SALES OFFICES IN 23 OTHER CITIES

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Pipe Pusher Saves Digging Trenches

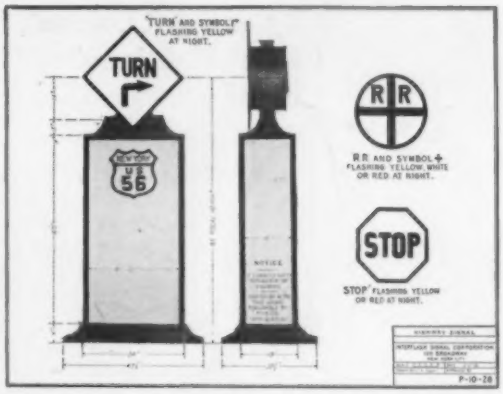
By compounding the leverage on its machines the Giant Manufacturing Company, Council Bluffs, Iowa, has produced a line of pipe pushers which can be used for the installation of service pipe under the street or through embankments, and in many other ways.

The pipe to be pushed is held firmly in place by the upper and lower jaws of the machine, which are constructed in the same manner as those of a vise. When the main lever is pushed back as far as it will go, the pawl automatically disengages from the carriage teeth because it comes in contact with the shoulder on the side of the frame. When the main lever is pushed forward, the pawl, which is hinged automatically, drops into the carriage teeth, forcing the pipe forward. With the reversible No. 3XR machine it is possible to push any pipe from ¾-inch to 2-inch through the ground and immediately withdraw it without resetting the machine. This is especially desirable when installing lead laterals. After the steel pipe is pushed through, lead pipe may be attached and redrawn through the hole made by the steel pipe. This method of installing lead is being used by a great number of organizations. When the job is complete, the pipe is absolutely straight and the danger of its being bent or mutilated is entirely eliminated.

A PIPE PUSHER THAT WILL ALSO PULL WITHOUT RESETTING

Harley-Davidson Secures Ricardo License

The Harley-Davidson Motor Company, Milwaukee, Wis., manufacturers of motorcycles, have adopted the Ricardo type of combustion chamber for their new machine. The new single-cylinder machine, which makes 80 miles per gallon, uses the Ricardo head. The Harley-Davidson Motor Company is manufacturing under license from the Waukesha Motor Company, Waukesha, Wis., builders of heavy-duty engines for industrial service.



NEW HIGHWAY TRAFFIC SIGNAL

New Highway Signal Conforms to Adopted Standards

A highway traffic signal, built in entire conformity with the standards adopted and approved by the recent Hoover Conference on Street and Highway Safety, the United States Bureau of Public Roads, the Joint Board on Interstate Highways, and the Association of State Highway Officials, has been announced by the Interflash Signal Corporation, 120 Broadway, New York City. This signal is designed for both day and night service, as all parts of the words and symbols are illuminated at night by a flashing light.

The pedestal of the signal is constructed of Armco ingot iron enameled white and set in a black-enameled frame. The base is 47½ x 32½ inches, and the focal height from base to center of the sign is 85 inches. Thus, a direction sign can easily be placed upon it.

The flashing signals are made of brass and aluminum painted Federal yellow, with the words and symbols of glass. These flash yellow or red at night.

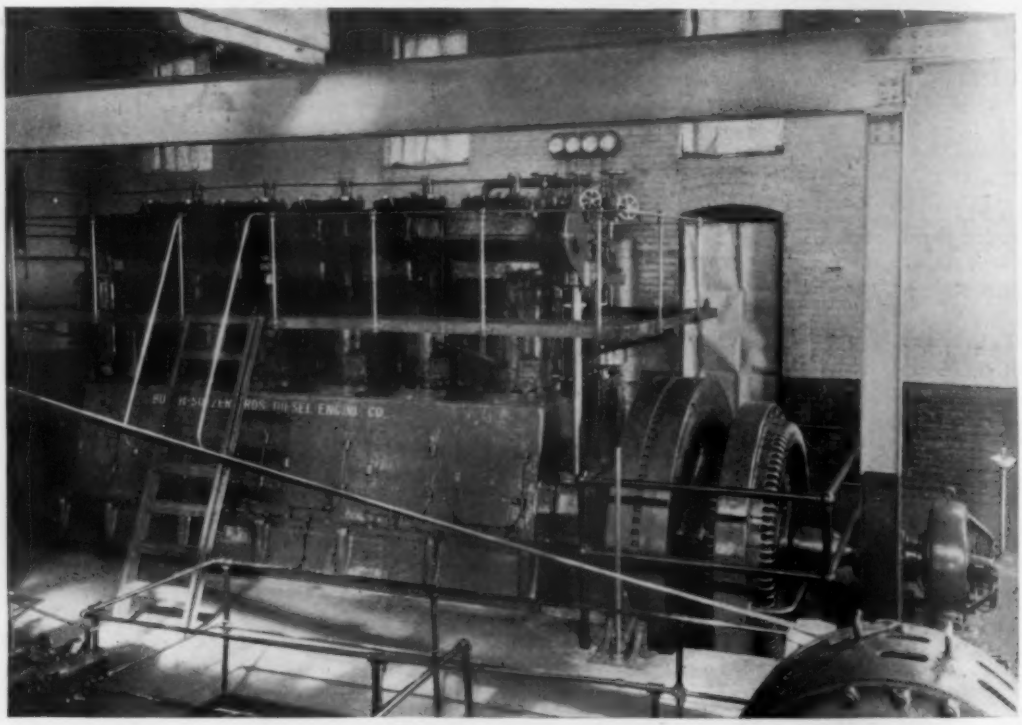
The flashing mechanism and operating parts of the highway signal are of the Interflash type used in all highway models manufactured by this company and similar to those furnished by the Interflash Signal Corporation to the United States Lighthouse Service. They consist of a flasher, a patented thermo-siphon, a gage, a regulator and a Prest-O-Lite acetylene tank.

A Sturdily Built 10-Ton Gas Road Roller

The new Case 10-ton gas road roller, made by the J. I. Case Threshing Machine Co., Racine, Wis., is designed with a very heavy frame of two ½-inch boiler plates with a depth

CITIES WHICH HAVE RECENTLY PURCHASED
BUSCH-SULZER DIESELS

City of Fort Pierce, Fla. - 1150 Horsepower
City of Seguin, Texas, - 400 Horsepower
City of Swift Current, Sask. - 600 Horsepower
City of McMinnville, Ore. - 600 Horsepower
City of Cherokee, Okla. - 400 Horsepower
City of Batesville, Ark. - 400 Horsepower
Village of Freeport, N. Y. - 1125 Horsepower
(This is Freeport's fourth Diesel)



500 B.H.P. Diesel, shown above, was installed in 1924 by the City of Estherville, Iowa, following a 225 B.H.P. engine in 1915 and a 250 B.H.P. unit in 1920.

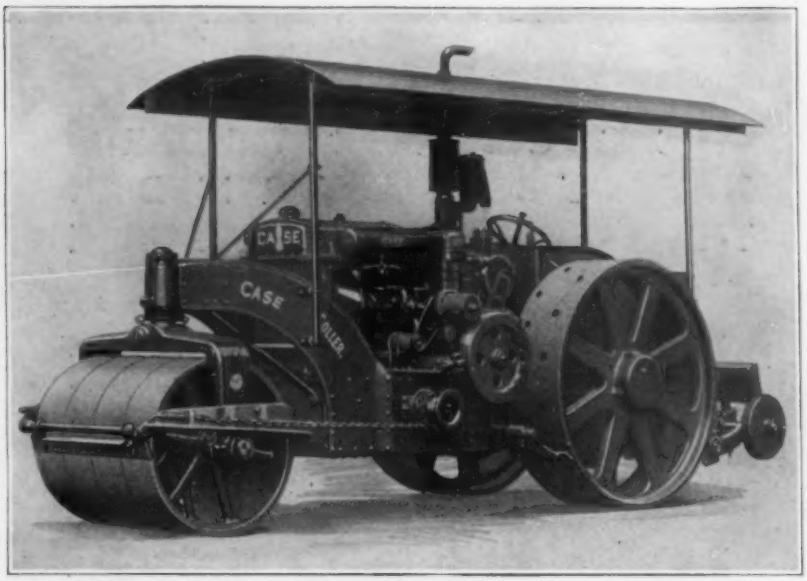
Send for bulletins on Municipal Diesel Plants

BUSCH-SULZER BROS.-DIESEL ENGINE CO.

Two Rector St.
New York

St. Louis, Mo.

Rialto Bldg.
San Francisco



THE NEW CASE 10-TON GAS ROAD ROLLER

of 20 inches. The engine and transmission are carried on steel brackets securely fastened by twin bolts and reamed holes to these pieces of boiler plate.

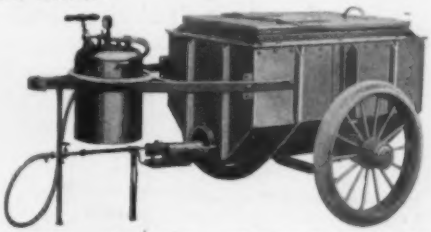
At the rear end a cross-plate is securely riveted in place, carrying the air cylinder used with the scarifier. The plate also carries the brackets which hold the scarifier. The rear axle has cannon bearings, each of which is a single casting between the two side members of the frame. The power-plant is the same 45-horsepower motor used in the Case 25-45 tractor. The four vertical cylinders, 5½ x 6¾ inches, cast in pairs, have renewable cylinder barrels and are finished by grinding.

The manufacturers claim that the special feature of this new Case gas-roller is that it requires but one operator—and he does not have to be a master mechanic. The operator, standing on a roomy platform, has a clear view of the front roller. All operating levers are at his finger-tips. The electric and pressure gages are in the dash in plain sight. The 4-way air valve and the pull lever on the air cylinder are conveniently located behind the operator.

A large wheel quickly steers the front roller, which is in four sections running loose on the front axle. The scarifier at the rear of the roller will tear up the full width of the roller as desired, and can be adjusted both as to width and depth. The picks are raised, lowered, and held in position with air-operated cylinder and piston. The air-compressor can be driven while the roller is standing still.

An Improved Oil-Burning Tar and Asphalt Kettle

An improved oil-burning tar and asphalt heating kettle, known as the Style-J kettle, has been developed by Connery & Company, Inc., 4000 North Second Street, Philadelphia, Pa. This kettle is designed exclusively for the use of oil as fuel. The inside tank is so constructed that the hot and cold materials are kept separate. As fast as the cold material melts, it runs into the hot reservoir, carrying with it the sediment and leaving the hot surface clean and in direct contact with the cold material. Because of this special feature, cold material may be added without lowering the temperature of the heated material. The kettle produces hot material approximately 10 minutes after the burner is started, and it will furnish a continuous supply. Low fuel cost and absolute temperature control are claimed as special features of the kettle.



THE NEW CONNERY OIL-BURNING MELTING KETTLE

The kettle is furnished with roller bearing wheels and springs. A distributing tube is built into the unit which will prevent the inside tank from burning out. A special oil heater is furnished which can be removed for thawing in winter or for other purposes. The entire outfit is constructed of No. 10 and No. 12 fire-box steel.

Addition to Yeomans' Factory

Yeomans Brothers Company, 1417 Dayton Street, Chicago, Ill., has recently let a contract for a twenty per cent increase to its plant. The addition will be of reinforced concrete brick and mill construction and will provide the necessary space for additional machining and assembling operations and also for a complete new testing plant with a capacity of approximately 200 horsepower. This increase in plant size is made necessary by a marked and constant increase in the volume of business in Yeomans pumping machinery and Shone sewage ejectors.

WHY

CHICAGO CONCRETE STANDARDS HAVEN'T BEEN ADVERTISED IN THE AMERICAN CITY MAGAZINE RECENTLY

Business has been booming with us. We have been working night and day to fill the deluge of orders that have come in from all over the country. Everyone seems to want Chicago Concrete Standards. Our facilities have been taxed to the limit.

But we are now equipped to fill all orders promptly, and desire particularly to call your attention to our popular

CHICAGO "GRANT PARK" STANDARD
(Pictured to the right)

After extensive, competitive tests, the Chicago South Park Commisssioners selected our CHICAGO "GRANT PARK" STANDARDS, because they

1. *Are outstandingly beautiful*
2. *Have great durability*
3. *Are low in first cost*
4. *Have no maintenance cost*

Chicago's Lake-Front Playground, Grant Park, is one of the wonder parks of the world. All appointments of the park must be objects of beauty in order to harmonize with the plan of the Commissioners to make this the most beautiful park anywhere.

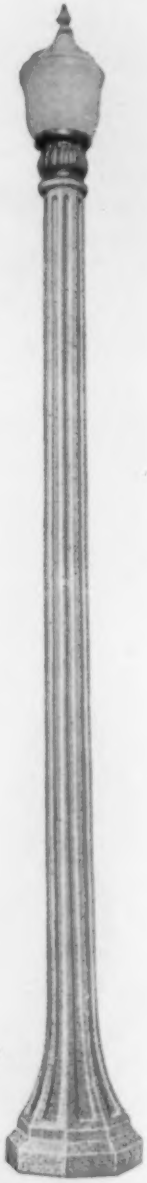
Grant Park houses the famous Field Museum, Stadium and other buildings whose stone takes on added beauty with age. Likewise does a Chicago Concrete Standard, which requires no painting or rust proofing. It improves with age in both beauty and strength.

All Chicago Concrete Standards are equipped exclusively with General Electric Novalux Units

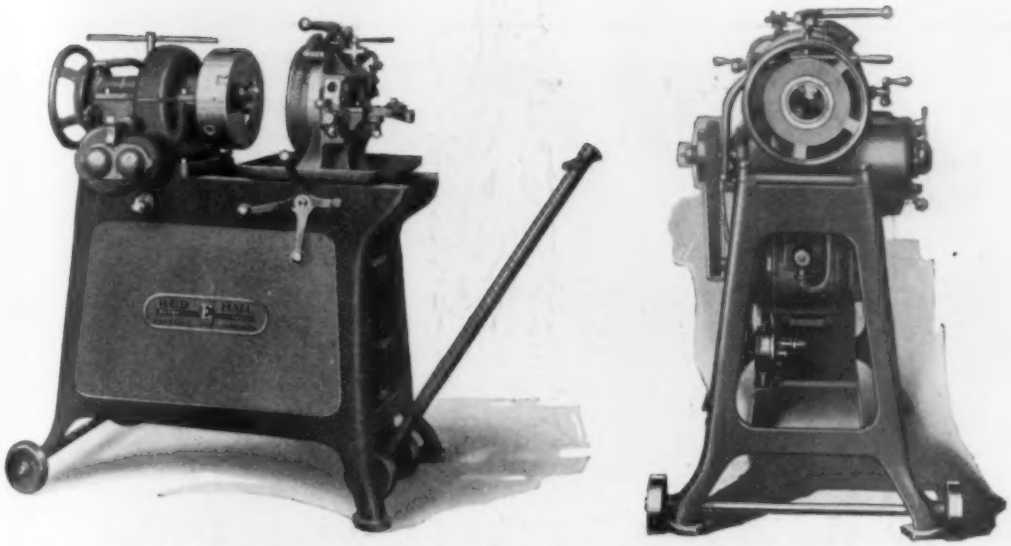
WRITE FOR FULL PARTICULARS

CHICAGO CONCRETE POST COMPANY
Paul K. Fleming, President
Lawrence, Lamon and Leland Avenues
CHICAGO, ILL., U. S. A.

Manufacturers of Lighting Standards for the Largest Street Lighting Jobs in the World



We Installed Over 400 Standards of this type in one of the best-known Parks in the World
Grant Park
Chicago



SIDE AND END VIEWS OF THE RED-E-HALL PORTABLE ELECTRIC PIPE MACHINE

A Portable Electric Pipe Machine

Hall-Will, Inc., Erie, Pa., has placed on the market the Red-E-Hall portable electric pipe machine for setting ¼- to 2-inch pipe and ½- to 1¼-inch bolts. It can also be used as a power unit, using the universal shaft to drive hand stocks up to 12 inches. This tool is designed as a portable machine, but can be changed over in three minutes to a stationary unit. The machine is built of malleable iron and steel construction throughout, weighing only 450 pounds.

It has a built-in truck which elevates instantly for portable operation, a friction clutch for starting and stopping, operated instantly by a lever handle on top of the machine, and silent chain drive direct from the motor to the machine, and is equipped with a 1-horsepower motor bolted direct to the main frame.

The machine has three speeds, extra fast for cutting off, and is self-lubricated. Close nipples can be threaded without extra equipment using only the standard chuck on the machine. The locking device on the head is simple, making it practically impossible for the head to open or slip while the thread is being cut. The cutting oil is forced into a chamber in the die head, and three specially arranged outlets allow it to be amply distributed direct on the dies.

The machine is equipped with a new cut-off attachment which is said to be exceptionally fast. A double opposed V-block with interchangeable hardened tool steel plates holds the pipe steady for cutting off. The cut-off block is mounted on the front V-block. A tapered steel gib insures proper adustment of the tool block. The reamer and chamber lever is mounted on the cut-off block.

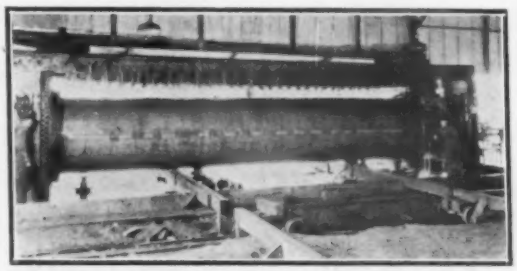
Sullivan Moves Boston Office

The Sullivan Machinery Company, 125 South Michigan Avenue, Chicago, Ill., has announced the removal of its Boston office to Suite 701, 45 Milk Street, from 201 Devonshire Street, where it has been located for some time. George H. Richey is Manager, assisted by E. T. Hall, R. E. Gadski, and Robert W. Haskell.

Progress of Welded Pipe Lines for Oakland Water-Supply

Work on the new 90-mile electrically welded water-supply line for the city of Oakland, Calif., has progressed rapidly. More than five miles of the Stable-Arc welded steel pipe has already been laid in the trenches to bring the water-supply for Oakland from the Mokelumne River. Each day 65-inch diameter steel pipe in 30-foot lengths is being fabricated by eight specially designed Lincoln Electric Company automatic welders at the West Berkeley, Calif., plant of the Steel Tank & Pipe Company.

Accurate costs are being kept on the fabrication



WELDING OF PIPE COMPLETE, SHOWING SPOT WELDS, THE INITIAL STEP IN WELDING THE PIPE

of this Stable-Arc welded pipe already manufactured, showing the economies possible through the use of this new process. Known costs, it is claimed, on work already done provide complete justification for the $3,000,000 saving which is guaranteed by the Steel Tank & Pipe Company on the fabrication of the 90 miles of pipe, as against the estimate for supplying other types of steel pipe. These savings are made possible by the use of the welding process devised by the Lincoln Electric Company of Cleveland, Ohio, resulting in reduced labor cost and a substantial decrease in the amount of steel required for the pipe.

Of vital importance is the fact that the welded

© Jay E. Brown, Lakeland, Fla.

In the heart 'o the Golden Hills lies beautiful Lakeland

FEW cities have been endowed by Nature with the glorious setting that is Lakeland's; a city beautiful—a picture of progress, among crystal-clear lakes in "The Heart o' the Golden Hills" of Polk County, Florida.

And, wisely, her people have chosen for the further beautification of her streets, ornamental lighting standards of simple beauty, of perfect symmetry—King's Community design of one-piece Ferronite construction.

CITY OF LAKELAND
FLORIDA

May 18th, 1926.

Mr. L. G. Fields,
c/o Graybar Electric Company,
Lakeland, Florida.

My dear Mr. Fields:

I am very glad indeed that we were in position to place the order with you for a two mile extension to our present whiteway system on Florida Avenue. As you know, we have used only the King pole in all of our whiteway extensions and I want to take this opportunity to say that we are highly pleased with the results we have obtained in beautifying our city electrically. It has proven satisfactory in every sense.

Yours very truly,

ARTHUR HOMFIRES
City Manager

AH/7

King standards are the result of many years of specialization: Super-resistant columns because of their scientifically distributed weight and strength: Simple of line—distinctively handsome, but not one whit of "over-designing."

Your city, too, is entitled to the perfect street lighting system. Complete information as embodied in Design Book No 100, will be sent promptly upon request. No obligation is entailed.

KING COMPANY

World's Foremost Manufacturers of Street Lighting Equipment.

230 SOUTH CLARK STREET
CHICAGO

Factory
Muscle Shoals,
Sheffield, Alabama

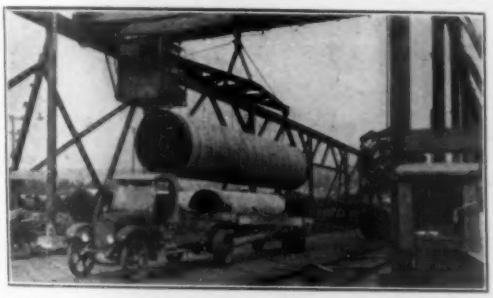
Distributed by: Graybar Electric Company

APPLYING COVERING TO PIPE AFTER BITUMASTIC TREATMENT

pipe is all being tested to accurately determine its strength. Each 30-foot length subjected to test has come through without failure or damage.

Using steel plate furnished by the Newport News Ship Building and Dry Dock Company, varying in thickness from ⅜- to ⅝-inch, the Steel Tank & Pipe Company runs the pieces through the straightening rolls, breaking rolls, and bending rolls to form it into shape. After the two half-circular pieces have been tacked together by hand welding, they are put through the specially built Lincoln automatic welders, where the joining of the steel members is completed. Upon the completion of this step, the pipe lengths are sent to the testing machines.

Thirty-foot sections of ½-inch pipe are carried up to a pressure of 312 pounds per square inch, giving 21,500 pounds fiber stress in the steel. While under this pressure, each pipe section is sledged on every foot of the weld with a 19-pound hammer. Following this procedure, the pressure is increased



LOADING STABLE-ARC WELDED PIPE AFTER COVERING FOR TRANSPORTATION TO THE JOB

to 400 pounds per square inch, which represents the elastic limit of the steel itself, and, in fact, it has been found that the steel in the pipe stretches sufficiently so that the circumference increases from 1 to 2 inches. After having successfully passed this test without developing any leaks, the welded pipe is passed through for final treatment. The sections are dipped in Bitumastic, then wrapped with a protective covering and put in the trenches.

As the fabrication of the pipe for this 90-mile undertaking progresses, sections are taken at random from those passing through the shop and subjected to a variety of other tests. After having subjected a number of sections to a tension of 45,000 pounds per square inch, the same length was then bent to a 90-degree angle. Here, again, the test showed the ability of the welded connections to withstand extreme abuse, for they came through in an entirely satisfactory manner.

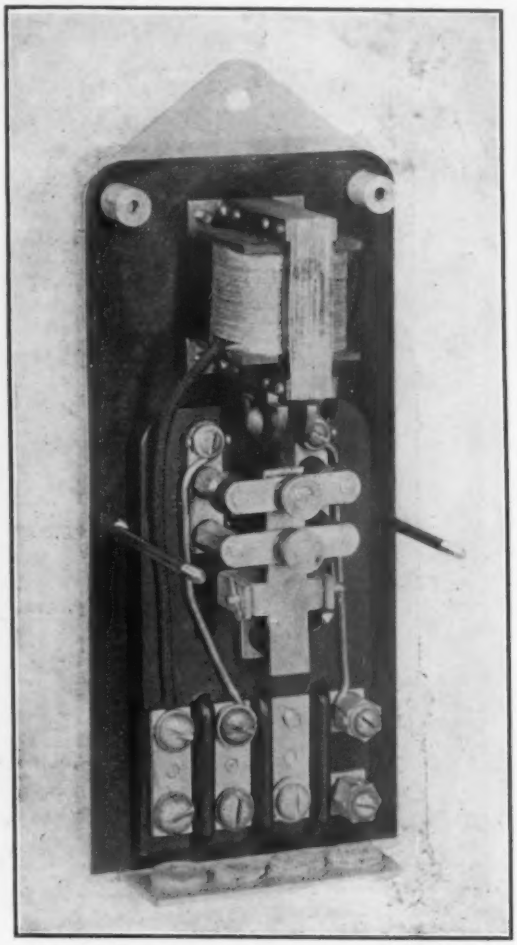
Among the other severe tests has been the collapsing of the pipe under extreme pressure. Examination of the sections which have been put through this test shows that the welds have come through without failure.

Early last March the first sections of the Stable-Arc welded steel pipe were laid in the trenches and the ends welded together. Since that date additional sections have been laid with increasing rapidity and at a rate of progress which is establishing a record.

A New Switch for Street-Lighting Service

A new type of street-lighting service switch which is small and compact so that it can be mounted inside a street-lighting standard has been developed by the General Electric Company, Schenectady, N. Y. This Novalux switch is a single-pole, double-brake, solenoid-operated device and is rated at 25 amperes at 110 volts on either alternating- or direct-current non-inductive circuits, and can be provided with either alternating- or direct-current operating coils.

The new switch is available in three forms: No. 1384-A, with contacts normally closed with the terminal board inside the cover and with a weatherproof case; No. 1384-B, with contacts normally open and otherwise the same as 1384-A,



MULTIPLE TYPE NOVALUX SWITCH WITH COVER REMOVED

ELRECO
POLES

BETTER lighting, more handsome streets, a permanent installation, and all at less cost—that's the brief story of Elreco Combination Poles.

Being of tubular steel construction, they will support the lamps at any height required. Naturally this is most important for illuminating wide streets economically.

Furthermore, tubular steel construction gives a durability that cannot be equalled by any other type.

It provides a simple beauty that ornaments any street.

And it saves the cost of underground wiring.

Consult Elreco before you make any plans.

THE ELECTRIC RAILWAY EQUIPMENT CO.

NEW YORK CINCINNATI CHICAGO

When writing to Advertisers please mention THE AMERICAN CITY—Thank you.

and No. 1384-C, with contacts normally closed with terminal board exposed and with non-weatherproof case.

Power consumption is 10 watts on 60-cycle, alternating-current circuits and 8 watts on direct-current circuits. Four outgoing terminals are provided, one for the common line to the coil and one side of the switch, one for the load, one for the other side of the coil and one for grounding the case. The terminal for the common line to the coil and contact tip has provisions for fusing.

Although primarily designed for street-lighting control, this switch, because of its compact construction and low cost, can be used for other services.

Traffic Control Layout at Busy Intersection

An interesting control layout at a busy intersection where both right- and left-hand turns are unavoidable is shown below. This layout is made up completely of Wamblu self-vulcanizing safety letters, strips, and arrows made by the Wamblu Corporation, Rochester, N. Y.

The marking illustrated was devised by Captain A. J. Kavanaugh, Chief of Traffic Squad in Rochester, N. Y., and was laid at the intersection of East Avenue, Rochester's main arterial highway, and Culver Road, which carries the city's heaviest stream of cross-town traffic. This intersection has had a bad record for casualties under former control methods.

The pavement marking consists of four pairs of curved directional strips, one pair projecting from each corner. The right strip of each pair crosses to the right of the center and is marked for traffic headed "Straight Thru" also for right-hand turns. The left-hand strip of each pair on the hand crosses to the left of the center and is marked for "Left Turn" only.

This layout has been in use for several months and, according to Captain Kavanaugh, has proved remarkably successful in preventing interlocking of vehicles making opposing left turns.

The marking is laid with Wamblu simplified safety letters, strips, and arrows. The strips are 3 feet long by 5 inches wide. Each line is about 50 feet in length, terminating in a Wamblu arrow. Manual control at this formerly troublesome intersection has been entirely eliminated. Signals are given by an automatic self-controlled unit having signals "Stop," "Clear" and "Go," manufactured by the Rochester Street Signal Company, Rochester, N. Y. This signal set is an innovation in that the signals are of the vertical type placed inside the curb lines and at a height of 8 feet, bringing the lamps in direct line of the driver's vision.

Wood Buys Highway Trailer Company Mechanical Hoist

The Highway Associate Companies, Edgerton, Wis., comprising the Highway Trailer Company and the Continental Axle Company, have announced the sale of the Highway mechanical hoist to the Wood Hydraulic Hoist & Body Company, of Detroit. This step was taken by the Highway Associate Companies to permit the concentration of manufacturing facilities on the line of Highway trailers and to make room for the new line of Highway power lift, quick detachable semi-trailers, a development in semi-trailer design and operation which will be announced very soon.

Climax Engines Approved by Underwriters

The Climax Engineering Company, Clinton, Iowa, has received the approval of the Underwriters' Laboratories, Inc., Chicago, for the use of Climax engines for fire protection purposes. These are said to be the first medium-speed industrial engines to gain the approval of the Underwriters' Laboratories for driving 750- and 1,000-gallon pumps. The Climax engines passed by the Underwriters are Models R4U and R6U with approved equipment. Basically, these models are the same that are being used largely in the industrial world for cranes, shovels, locomotives, pumping and generator sets.

Heil Announcements

The Heil Company, Milwaukee, Wis., has opened a factory branch office and service station for the New England territory at 298 North Harvard Street, Boston (Brighton), Mass. Clarence H. Zarse, formerly of the Heil Milwaukee gen-

TRAFFIC LANES DEVISED FOR USE IN ROCHESTER, N. Y.

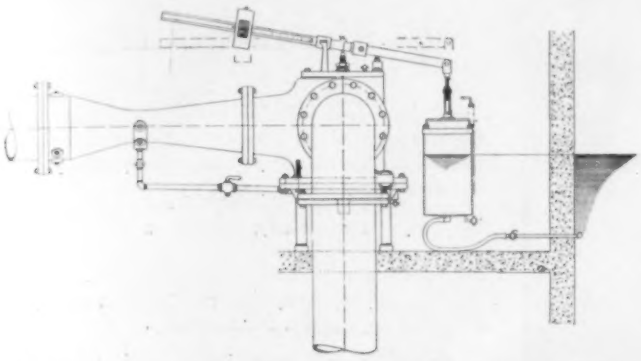
Oakland
California
awards contract
for 56 Traffic Signals
and controlling apparatus
to Essco

Why?

Essco Manufacturing Co.
Peoria, Illinois

eral sales staff, has been placed in charge as Branch Manager.

Announcement has also been made that Howard Winton, formerly Advertising Manager, is now in charge of promotion and activities of Heil branches and distributors in his new capacity as General Branch Manager. Arthur Nicolaus, formerly Assistant Advertising Manager, has been appointed Advertising Manager.



SIMPLEX RATE OF FLOW CONTROLLER WITH BUCKET PULLING AUTOMATIC SHUT-OFF FOR CLEAR-WELL LEVELS ABOVE GALLERY FLOOR

An Automatic Shut-Off Controller for Water Filters

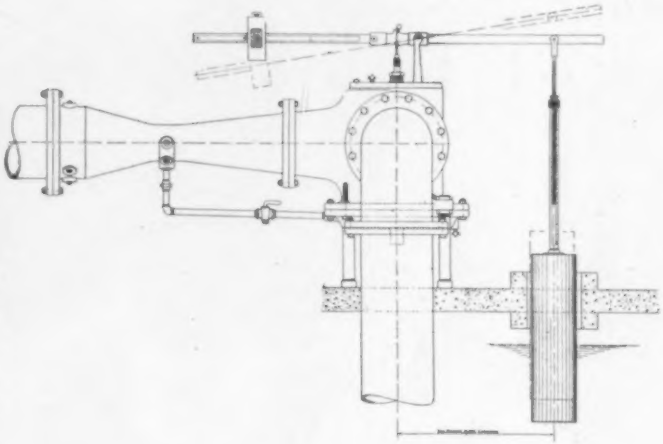
A type of rate of flow controller for filters so constructed as to reduce the flow gradually to a shut-off or to increase it to a suitable normal rate as the water either rises to the top of the clear well or falls therefrom, respectively, has been developed by the Simplex Valve & Meter Company, 6743 Upland Street, Philadelphia, Pa. Change of rate of flow to complete shut-off is accomplished by increasing the buoyancy of a float counterweight suspended in the clear well or by increasing the loading of a fluid counterweight on account of a rise of the water level within it. The selection between these two types of controllers depends upon the relative elevation of the operating gallery floor and the clear-well levels that are intended to affect the filter rate. If the high level of the clear well is below the gallery floor, the first type BC should be used and if above it, the second type BCA.

These automatic shut-off rate of flow controllers insure a gradual reduction in rate of filtration as the clear-well level reaches the flow line, effects a complete closing-off of the filters when the clear well is full, and maintains at all times filter operation at the normal rate whenever the well is below a predetermined elevation.

Each controller is operated independently by the action of the clear-well change without any intermediate mechanism. If desired, any individual controller can be made to operate as a standard controller by removing the closing-off element and by placing the counterweight in the proper position.

Multi-Stage Centrifugal Pumps for Fire Service

The multi-stage pump is essentially a high-head or high-pressure pump and consists of two or more stages. Each stage is practically a separate pump, although they are in the same housing and the operating impellers are on the same shaft. The initial or first stage receives or draws the water from the suction line, builds up the pressure, and passes it into the next succeeding stage. Here the pressure is increased to the capacity of that stage, and is passed into the next. This process continues throughout the entire succession of stages, the pressure being built up until the water is discharged from the final stage at such pressure and volume as the pump is intended to deliver. The design of Dean-Hill multi-stage pumps made by the Dean-Hill Pump Company, Anderson, Ind., is along the lines of good hydraulic practice with certain refinements and features to give high efficiency. The pumps are simple in design and rugged in construction and are built in either the volute or the diffuser type.



SIMPLEX RATE OF FLOW CONTROLLER WITH FLOAT PUSHING AUTOMATIC SHUT-OFF FOR CLEAR-WELL LEVELS BELOW GALLERY FLOOR

The volute type of multi-stage pump is used principally where high efficiencies are not required or the liquid to be handled is extremely gritty.

These pumps may be had driven at one end by an electric motor and at the other end by a gasoline engine, the gasoline engine being equipped with an electric starter and generator for immediate starting. Every pump is delivered equipped with an electric starter and generator

ELECTRIC BEACONS
FLASHING & NON-FLASHING

Pedestrians are afforded protection while crossing the street and vehicles have a pivot around which to turn. The beacon is conspicuous both day and night.

Four side lamps flash intermittently and a base lamp burns continuously, throwing a steady light downward for the purpose of illuminating the area below, thus giving additional warning to traffic. The failure of any one lamp does not affect the others, thereby giving a greater factor of safety.

Non-flashing beacons display steady warning lights.

GIVE
DAY AND NIGHT
PROTECTION

CROUSE-HINDS COMPANY
ESTABLISHED 1897
SYRACUSE, N.Y., U.S.A.
Sales Offices

NEW YORK
PHILADELPHIA PITTSBURGH DETROIT CINCINNATI CLEVELAND ATLANTA
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ST LOUIS SAN FRANCISCO MINNEAPOLIS MILWAUKEE

CH 267

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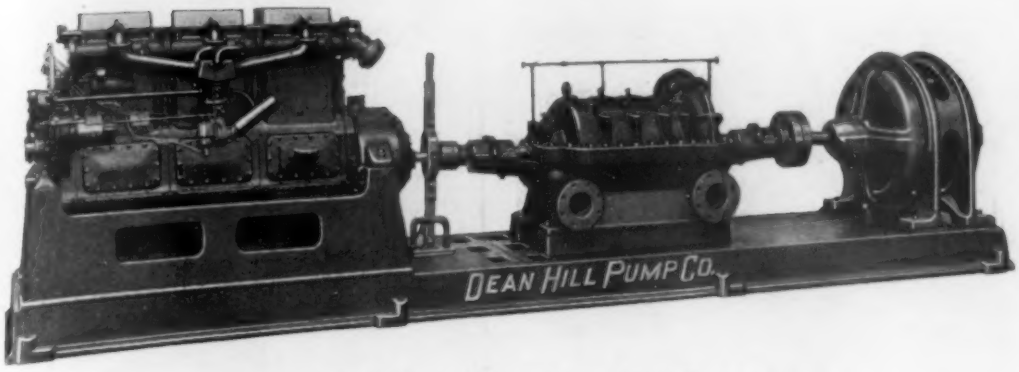


A DEAN-HILL EMERGENCY FIRE OR SERVICE UNIT

The pump is driven on one end by an electric motor and on the other end by a gasoline engine. The engine is equipped with an electric starter and generator for immediate starting

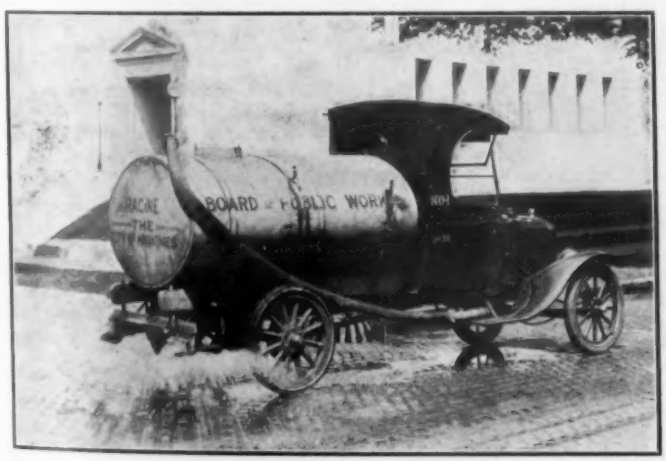
for immediate starting. Every pump delivered from the Dean-Hill factory undergoes a most rigid test over its complete range of capacity, which not only checks the hydraulic characteristics of the pump, but insures proper mechanical operation. The testing plant is adequately equipped with water-measuring devices, calibrated motors, dynamometers, and necessary pressure-recording instruments to test quickly and accurately pumps up to 30,000 gallons per minute capacity.

Street Sprinkling in Racine, Wis.

For many years the city of Racine has annually contracted for sprinkling streets with private owners of sprinkling equipment. Bids were advertised for in the usual way, with the result that all owners of equipment seemed able to secure a portion of the work. Coal companies used to find use for their teams during the summer, when coal deliveries were at a minimum, by taking contracts for sprinkling, and as a result the prices paid for sprinkling were reasonable and fair.

With the substitution of large motor trucks for hauling coal in place of horses, the field of bidders was materially reduced. Those left still retained the old-style wooden tank wagons drawn slowly and surely over the street by a team of horses. In hot summer weather the sun would dry the sprinkled street while the horse-drawn sprinkler had succeeded in making only a small portion of its trip.

In the spring of 1925, the city of Racine decided that the methods of sprinkling employed were not only obsolete and inefficient, but costly to the taxpayer. A survey was made of the situation and a sprinkler tank was purchased from the Heil Company, Milwaukee, Wis., for experimental purposes. A study of the results showed that the streets could be sprinkled more frequently because of the speed of the motorized apparatus and that the cost was below the fondest anticipations, according to William H. Armstrong, Mayor. In 1924, the last year horse-drawn sprinklers owned by private contractors were used, the cost to property owners was $15,007.32. In 1925, with three Heil sprinkler tanks, mounted on Ford chassis, the total cost, including a liberal charge for depreciation and interest on the equipment, was $8,678.06.



HEIL SPRINKLER TANK ON FORD TRUCK OWNED BY THE CITY OF RACINE, WIS.

New Pipe-Cleaning Organization

The General Pipe Cleaning Company, 23rd and Westmoreland Streets, Philadelphia, Pa., has recently secured patents on a scheme for cleaning water-mains. Charles Haydock is President; W. R. Conrad, of Conrad & Buzby, Consulting Engineers, Burlington, N. J., Vice-President; and Norman V. Bureau, Secretary and Treasurer.

Foamite-Childs to Market Amdyco Products

The Foamite-Childs Corporation, Utica, N. Y., has made arrangements with the Amdyco Corporation, 100 East 42nd Street, New York, to market Amdyco continuous-foam method of fire fighting. They will also service all Amdyco generator products.

CELITE

Insures Better Concrete at Less Cost

The Way to Economical Concrete Construction

The workability of a concrete mixture, which determines the amount of labor necessary to place it properly, is greatly improved through the use of the admixture Celite.

This inactive powder acts as a stabilizer in the mix, keeping the coarse aggregate and sand, water and cement in exactly the same relationship throughout handling and placing as when discharged from the mixer.

It enables the successful placing of concrete of relatively dry consistencies, in the most intricate of forms. It is a boon to gunning and chuting, and the use of central mixed concrete.

Water-tightness, also, is affected to a high degree by the correct use of Celite. And with segregation absolutely overcome the cost of final patching is saved.

Wherever concrete is used—in tunnels, bridges, dams, culverts, retaining walls, pavements, foundations and concrete buildings—it pays to employ this workability admixture.

A Celite engineer is always at your command at a nearby office to show you the way to better concrete at less cost through the use of this material. Write for Bulletin V-144 which describes its application in all classes of concrete construction.

CELITE PRODUCTS COMPANY

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1320 S. Hope St. Los Angeles
140 Spear St. San Francisco

Celite Products Limited
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Celite is a finely ground mineral powder composed of practically pure amorphous silica.

Its sole functions are to increase workability without the use of excess mixing water, to prevent segregation, to insure uniformity, density and water-tightness and to improve the finish and the workability of concrete.

Every City Needs

—the positive, economical drinking sanitation that is provided with Rundle-Spence Vertico-Slant Fountains. This is the type of "bubbler" that safeguards public health at all times.

Lips can't touch the R-S nozzle—sanitation is automatically enforced — the slight slant stream prevents water from falling back upon the jet.

Waste of water is eliminated—a necessary economy for playgrounds, parks, and other places where many people gather.

The R-S line includes Sanitary Drinking Fountains, Bath and Plumbing Fixtures and Supplies. Write for catalog with complete information.

RUNDLE-SPENCE MFG. CO.

53 Fourth St. Milwaukee, Wis.

RUNDLE-SPENCE